

AIRTIME

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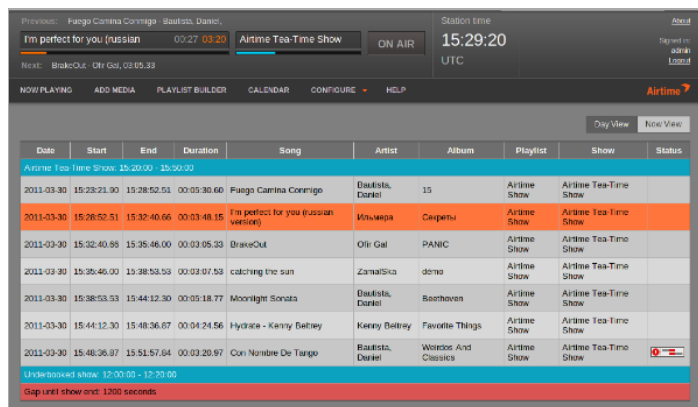
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INTRODUCTION

I. WHAT IS AIRTIME?

I. WHAT IS AIRTIME?

Airtime is the open broadcast software for scheduling and remote station management. Web browser access to the station's media archive, multi-file upload and automatic metadata verification features are coupled with a collaborative on-line scheduling calendar and playlist management. The scheduling calendar is managed through an easy-to-use interface and triggers playback with sub-second precision.



The screenshot shows the Airtime web interface. At the top, there's a header with 'Previous: Fuego Camina Conmigo', 'Next: BrakeOut - Off Gal, 03:05:33', and 'Station time: 15:29:20 UTC'. Below this is a navigation bar with 'NOW PLAYING', 'ADD MEDIA', 'PLAYLIST BUILDER', 'CALENDAR', 'CONFIGURE', and 'HELP'. The main content area displays a playlist for 'Airtime Tea Time Show' with columns for Date, Start, End, Duration, Song, Artist, Album, Playlist, Show, and Status. The playlist includes tracks like 'I'm perfect for you (russian version)', 'BrakeOut', 'catching the sun', 'Moonlight Sonata', 'Hydrate - Kenny Bethray', and 'Con Nontrite De Tange'. A red bar at the bottom indicates 'Gap until show end: 1200 seconds'.

Date	Start	End	Duration	Song	Artist	Album	Playlist	Show	Status
Airtime Tea Time Show: 15:20:00 - 15:50:00									
2011-03-30	15:23:21.90	15:28:52.51	00:05:30.60	Fuego Camina Conmigo	Baudista, Daniel	15	Airtime Show	Airtime Tea-Time Show	
2011-03-30	15:28:52.51	15:32:40.66	00:03:48.15	I'm perfect for you (russian version)	Khushepa	Capetru	Airtime Show	Airtime Tea-Time Show	
2011-03-30	15:32:40.66	15:35:46.00	00:03:05.30	BrakeOut	Off Gal	PANIC	Airtime Show	Airtime Tea-Time Show	
2011-03-30	15:35:46.00	15:38:53.53	00:03:07.53	catching the sun	ZamaSika	demo	Airtime Show	Airtime Tea-Time Show	
2011-03-30	15:38:53.53	15:44:12.30	00:05:18.77	Moonlight Sonata	Baudista, Daniel	Beethoven	Airtime Show	Airtime Tea-Time Show	
2011-03-30	15:44:12.30	15:48:36.67	00:04:24.36	Hydrate - Kenny Bethray	Kenny Bethray	Favorite Things	Airtime Show	Airtime Tea-Time Show	
2011-03-30	15:48:36.67	15:51:57.64	00:03:20.97	Con Nontrite De Tange	Baudista, Daniel	Words And Classics	Airtime Show	Airtime Tea-Time Show	
Underscored show: 17:00:00 - 17:30:00									
Gap until show end: 1200 seconds									

Airtime has been intended to provide a solution for a wide range of broadcast projects, from community to public and commercial stations. The scalability of Airtime allows implementation in a number of scenarios, ranging from an unmanned broadcast unit accessed remotely through the Internet, to a local network of machines accessing a central Airtime storage system. Airtime supports the playout of files in both the commonly used MP3 format and the open, royalty-free equivalent Ogg Vorbis.

Airtime manages the Liquidsoap stream generator, which is at the heart of the system. Liquidsoap generates streams from files in the Airtime media archive, which is indexed in a PostgreSQL database. Live shows are automatically recorded with Ecasound, using the soundcard line input. Editors and station controllers can use Airtime to build playlists and manage files (upload, add metadata, manage advertisements) inside the station or via the Internet, using a standard web browser such as Mozilla Firefox or Internet Explorer.

The scheduler in Airtime has a calendar view, organized by months, weeks and days. Here the program editors can schedule playlists and shows for their broadcast station. In some scenarios, the transmitter is situated outside the reach of the broadcaster and all program management has to be maintained through the web interface. Possible reasons for this scenario might be of a pragmatic nature (running many stations from one central office due to limited human resources) or an emergency (running a transmitter in a crisis area without putting staff at risk).

AIRTIME WORKFLOW

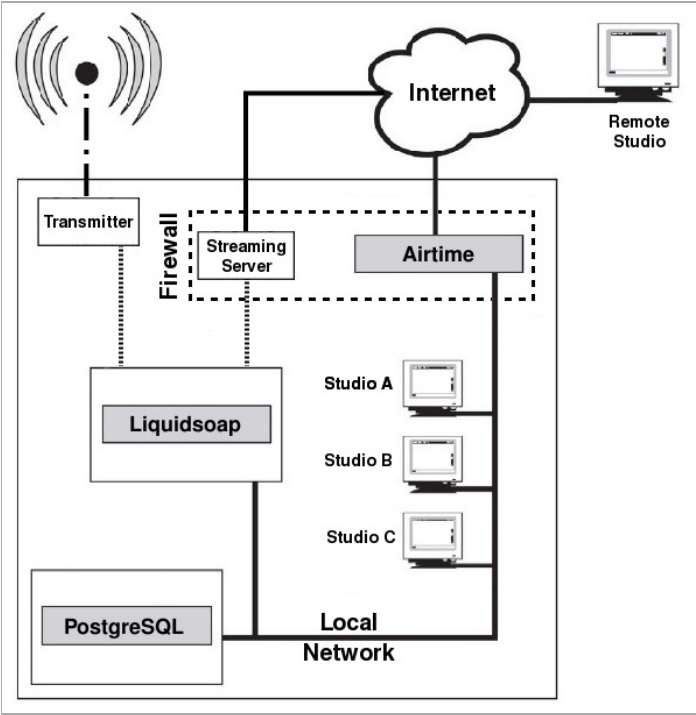
This typical workflow is intended to clarify the difference between the various components that make up a complete Airtime system.

1. There are media files on a server, which include metadata in their tags (title, creator, genre and so on).
2. There is a PostgreSQL database which contains the location of those media files and their metadata. This means you can search for and select a set of media files according to the specific metadata that you require.
3. There is a Liquidsoap stream generator on the server which can take individual media files and assemble them into a continuous stream. This stream can be sent to a soundcard (e.g. for a broadcast mixer, on the way to an FM or DAB transmitter) or to a streaming server for IP network distribution, such as LAN, local WiFi or the Internet. You can stream to a soundcard and to IP networks with the same server, if you wish.
4. Icecast is the default streaming server, but in theory you could stream from Liquidsoap to any online service. If a suitable software interface is not available for your streaming service of choice, you can send audio from Liquidsoap to a separate encoding or streaming machine via a soundcard.
5. Airtime manages all of these components, and provides an easy to use web interface to the system. It enables your station staff to:
 - a) upload media files to the storage server
 - b) automatically import the file metadata into the PostgreSQL database
 - c) edit the metadata for the files, if required
 - d) create and edit playlists of media files (playlists are also saved in the database)
 - e) schedule shows (which can contain playlists, or be live) for specific dates and times on a calendar
 - f) record live shows from the soundcard input with Ecasound, upload them to the storage server and import them into the database automatically
 - g) manage presenter access to the schedule calendar
 - h) see what is about to be played by Liquidsoap in the 'Now Playing' view

EXAMPLE SYSTEM

Combining Airtime, the Liquidsoap stream generator, the PostgreSQL database and file storage, you can supply a broadcast station with all the functionality needed for automation.

In the diagram below, the media files are stored on a separate machine which also includes a PostgreSQL database, accessible through the local network. Liquidsoap outputs streams to both the transmitter and a streaming media server. The machine running Airtime is behind a firewall because it is connected both to the local network, and to the Internet for remote access. This enables Airtime to offer password-protected access to the media database and scheduling from both inside and outside the studio building.



INSTALLATION

- 2. PREPARING THE SERVER**
- 3. AUTOMATED INSTALLATION**
- 4. MANUAL INSTALLATION**
- 5. SETTING THE SERVER TIME**
- 6. USING THE IMPORT SCRIPT**

2. PREPARING THE SERVER

The following instructions assume that you have root access (*sudo* on Ubuntu) to a GNU/Linux server, and are familiar with basic command line tasks.

The recommended Airtime server platform is Ubuntu 10.04 'Lucid Lynx' LTS. Debian 6.0 'squeeze' is also a good option. The server should have at least a 1GHz processor and 512MB of RAM. The Airtime installation does not use much disk space, but you should allow plenty of storage capacity for the media archive. A hot-swap RAID array is recommended for the media archive, in case of disk failure. You should also consider a UPS or other battery powered system to offer some protection against short-term power failures.

The Airtime web administration interface is intended to work with any browser, on any desktop or mobile platform. The recommended web browser is Mozilla Firefox 3.6.

SOUNDCARDS

If you intend that your Airtime server will have a direct audio output to a broadcast transmitter or a separate stream encoder, your server machine must have a soundcard supported by an ALSA driver. Almost all standard soundcards have ALSA drivers built into the Linux kernel, which do not need to be installed separately. If in doubt about driver support for your soundcard, check the ALSA soundcard matrix at: <http://www.alsa-project.org/main/index.php/Matrix:Main>

If your Airtime machine will only be used to stream to an Icecast streaming media server, you do not require a soundcard to be installed on the server side. This option is suitable for Airtime installations at your ISP's datacenter, remote from any transmitter.

SET UP REPOSITORIES FOR UBUNTU

When installing on an Ubuntu server, a few of the packages that Airtime relies on are in the Ubuntu *universe* or *multiverse* repositories. If either of these repositories is disabled, you can enable them in the */etc/apt/sources.list* file, by opening the *nano* editor in your server's console with the command:

```
$ sudo nano /etc/apt/sources.list
```

For an Ubuntu Lucid server, find the lines which begin *deb* and end with *lucid universe* or *lucid-updates universe*, adding *multiverse* to the end of these lines, if it is not there already. The *multiverse* repository is required for the *libmp3lame0* library, which is an MP3 encoder.

```
GNU nano 2.2.2      File: /etc/apt/sources.list

# deb cdrom:[Ubuntu 10.04 LTS _Lucid Lynx_ - Release amd64 (20100429)]/ l$
# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to
# newer versions of the distribution.

deb http://gb.archive.ubuntu.com/ubuntu/ lucid main

## Major bug fix updates produced after the final release of the
## distribution.
deb http://gb.archive.ubuntu.com/ubuntu/ lucid-updates main

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team. Also, please note that software in universe WILL NOT receive any
## review or updates from the Ubuntu security team.
deb http://gb.archive.ubuntu.com/ubuntu/ lucid universe multiverse
deb http://gb.archive.ubuntu.com/ubuntu/ lucid-updates universe multiverse

^G Get Help  ^O WriteOut  ^F Read File ^Y Prev Page  ^K Cut Text   ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page ^L UnCut Text ^T To Spell
```

The exact repository mirror URLs in your *sources.list* file will differ from the above screenshot, depending on your location.

The Sourcefabric repository contains packages for Airtime, and any other packages which Airtime requires. To add the Sourcefabric repository to an Ubuntu Lucid server, scroll to the end of the *sources.list* file and add the following line:

```
deb http://apt.sourcefabric.org/ lucid main
```

For Ubuntu Maverick, substitute *maverick* in place of *lucid* in the line above.

```
GNU nano 2.2.2      File: /etc/apt/sources.list

## Also, please note that software in backports WILL NOT receive any review
## or updates from the Ubuntu security team.
# deb http://gb.archive.ubuntu.com/ubuntu/ lucid-backports main restricted
# deb-src http://gb.archive.ubuntu.com/ubuntu/ lucid-backports main restricted

## Uncomment the following two lines to add software from Canonical's
## 'partner' repository.
## This software is not part of Ubuntu, but is offered by Canonical and the
## respective vendors as a service to Ubuntu users.
# deb http://archive.canonical.com/ubuntu lucid partner
# deb-src http://archive.canonical.com/ubuntu lucid partner

deb http://security.ubuntu.com/ubuntu lucid-security main
deb http://security.ubuntu.com/ubuntu lucid-security universe

deb http://apt.sourcefabric.org/ lucid main
```

Press **Ctrl+O** (the **Ctrl** key and the letter **O** together) to save the file, then **Ctrl+X** to exit the nano editor.

SET UP REPOSITORIES FOR DEBIAN

On Debian, you may need to install the **sudo** package, if it is not installed already. On a Debian squeeze server, after you have installed and configured **sudo**, you can edit the */etc/apt/sources.list* file with the command:

```
$ sudo nano /etc/apt/sources.list
```

You can obtain the *libmp3lame0* library package by adding the following repository to the end of the file:

```
deb http://www.debian-multimedia.org squeeze main non-free
```

To add the Sourcefabric repository to a Debian squeeze server, add the following line to the end of the file:

```
deb http://apt.sourcefabric.org/ squeeze main
```

Press **Ctrl+O** (the **Ctrl** key and the letter **O** together) to save the file, then **Ctrl+X** to exit the *nano* editor.

INSTALL THE SOURCEFABRIC SIGNING KEY

Reload the system's package list with:

```
$ sudo apt-get update
```

You will see an error message about a missing public key.

```
Hit http://gb.archive.ubuntu.com lucid Release
Hit http://gb.archive.ubuntu.com lucid-updates Release
Hit http://gb.archive.ubuntu.com lucid/main Packages
Hit http://gb.archive.ubuntu.com lucid/universe Packages
Hit http://gb.archive.ubuntu.com lucid/multiverse Packages
Hit http://gb.archive.ubuntu.com lucid-updates/main Packages
Hit http://gb.archive.ubuntu.com lucid-updates/universe Packages
Hit http://gb.archive.ubuntu.com lucid-updates/multiverse Packages
Fetched 491B in 2s (218B/s)
Reading package lists... Done
W: GPG error: http://apt.sourcefabric.org lucid Release: The following si
gnatures couldn't be verified because the public key is not available: NO
_PUBKEY 0888FE5B174C1854
daniel@office:~$ █
```

To fix this system error, you need to install the *sourcefabric-keyring* package, which contains the package signing key. This encryption key is a security measure which helps ensure that the Airtime packages you will be downloading in future have not been tampered with by a third party. You can install the key with the command:

```
$ sudo apt-get install sourcefabric-keyring
```

When prompted, press the **y** key on your keyboard to install the *sourcefabric-keyring* package without verification. If you wish to verify the authenticity of the package signing key, please contact Sourcefabric for assistance.

```
daniel@office:~$ sudo apt-get install sourcefabric-keyring
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed
  sourcefabric-keyring
0 upgraded, 1 newly installed, 0 to remove and 7 not upgraded.
Need to get 3,610B of archives.
After this operation, 49.2kB of additional disk space will be used.
WARNING: The following packages cannot be authenticated!
  sourcefabric-keyring
Install these packages without verification [y/N]? y
Get: 1 http://apt.sourcefabric.org/ lucid/main sourcefabric-keyring 0.1 [3,610B]
Fetched 3,610B in 0s (12.3kB/s)
Selecting previously deselected package sourcefabric-keyring.
(Reading database ... 348822 files and directories currently installed.)
Unpacking sourcefabric-keyring (from .../sourcefabric-keyring_0.1_all.deb)
...
Setting up sourcefabric-keyring (0.1) ...
daniel@office:~$
```

Update your computer's software sources again, to confirm that you are now using a trusted software repository:

```
$ sudo apt-get update
```

You should no longer see the error message about the missing public key.

INSTALLING THE DATABASE MANAGEMENT SYSTEM

Airtime uses a PostgreSQL database to keep track of media assets and associated metadata in its storage server. Depending on the scale of your Airtime installation and the hardware available, you may wish to install PostgreSQL on a separate server. If you only have one server, you can install the *postgresql* package on the same machine as Airtime with the command:

```
$ sudo apt-get install postgresql
```

INSTALLING A STREAMING SERVER

Optionally, you may wish to stream directly from Airtime to an Icecast media distribution server, without requiring a soundcard or mixer in the broadcast chain. This option is particularly suitable for fully automated stations, in which all shows are played out using Airtime. You can install the *icecast2* package on your server with the command:

```
$ sudo apt-get install icecast2
```

In some scenarios, you may wish to stream from Airtime to a remote Icecast server, for example when Icecast is installed on a server in a datacenter with greater bandwidth available than an Airtime server located at your broadcast studio has. This separation may become necessary if your stream becomes popular, because each additional listener which connects to the Icecast stream uses additional bandwidth. In this case, you do not need to install the *icecast2* package on the Airtime server.

REMOVE PULSEAUDIO

The PulseAudio sound server is not compatible with Airtime, but is installed by default on Ubuntu. To remove PulseAudio from an Ubuntu machine, type the following command:

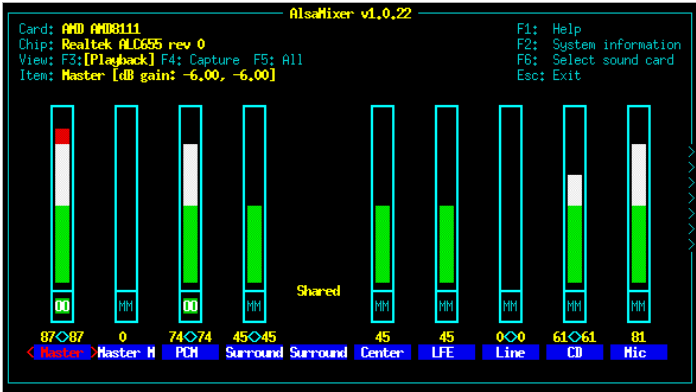
```
$ sudo apt-get purge pulseaudio
```

Removing the *pulseaudio* package on a desktop Ubuntu machine may force the removal of the *ubuntu-desktop* metapackage. However, this metapackage is only installed on the system for managing upgrades; removing it does not remove the GNOME desktop.

After removing PulseAudio, if your Airtime machine has a desktop and a soundcard, you can install a mixer applet which can control the ALSA soundcard driver directly, such as *gnome-alsamixer*:

```
$ sudo apt-get install gnome-alsamixer
```

On a server with a soundcard but without a desktop, you can control sound input and output levels using the command line program *alsamixer*:



This program should already be installed on an Ubuntu or Debian machine with a soundcard. If not, you can install it with the command:

```
$ sudo apt-get install alsa-utils
```

Now your server should be ready for Airtime to be installed.

3. AUTOMATED INSTALLATION

This installation method is intended for computers running Ubuntu or Debian GNU/Linux, and is the recommended method for new Airtime users.

After setting up the Sourcefabric package repository and installing PostgreSQL, as described in the previous chapter, you can install the Airtime packages with:

```
$ sudo mkdir -p /tmp/pear/cache
$ sudo apt-get install airtime airtime-audio-samples
```

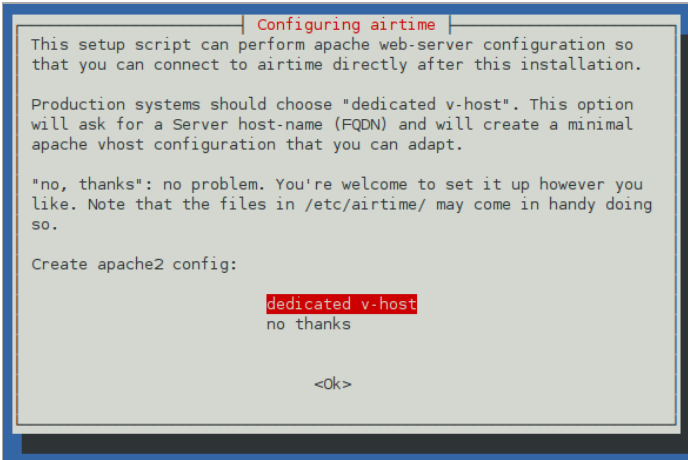
This command will install all of the Airtime components, plus many other packages that Airtime requires in order to run.

```
daniel@office:~$ sudo apt-get install airtime airtime-audio-samples
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  erlang-os-mon erlang-snmplib libfindlib-ocaml libfindlib-ocaml-dev
  libogg-ocaml libogg-ocaml-dev libvorbis-ocaml libvorbis-ocaml-dev
  ocaml-findlib php5-curl python-pip python-setuptools rabbitmq-server
Suggested packages:
  ecasound erlang erlang-manpages erlang-doc-html ocaml-findlib-wizard
The following NEW packages will be installed:
  airtime airtime-audio-samples erlang-os-mon erlang-snmplib
  libfindlib-ocaml libfindlib-ocaml-dev libogg-ocaml libogg-ocaml-dev
  libvorbis-ocaml libvorbis-ocaml-dev ocaml-findlib php5-curl python-pip
  python-setuptools rabbitmq-server
0 upgraded, 15 newly installed, 0 to remove and 7 not upgraded.
Need to get 178MB of archives.
After this operation, 242MB of additional disk space will be used.
Do you want to continue [Y/n]? Y
Get: 1 http://apt.sourcefabric.org/ lucid/main airtime 1.7.0-2 [11.0MB]
```

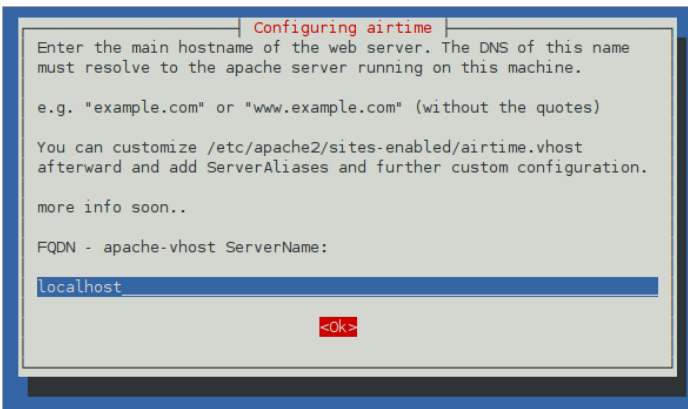
The *airtime* package contains the Airtime web interface, while the *airtime-audio-samples* package contains some media files that you can use to test the playout system, and follow the chapters in this book. For a production Airtime server, you do not need the *airtime-audio-samples* package.

Once all the packages have been downloaded and installed, you will be asked a few questions about the configuration of the Airtime system. You can accept the default settings by pressing the **Enter** key, or use the **Tab** key to change your selection.

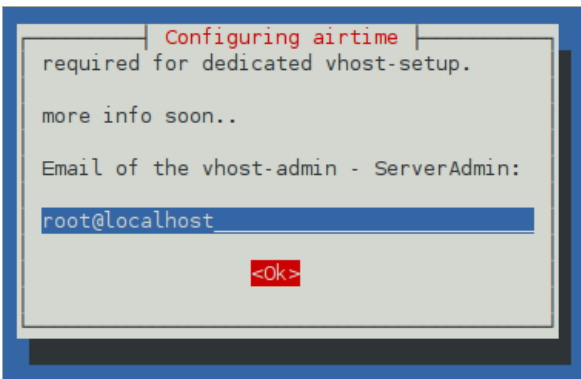
Firstly, you will be asked if you wish to create an Apache virtual host web server configuration automatically.



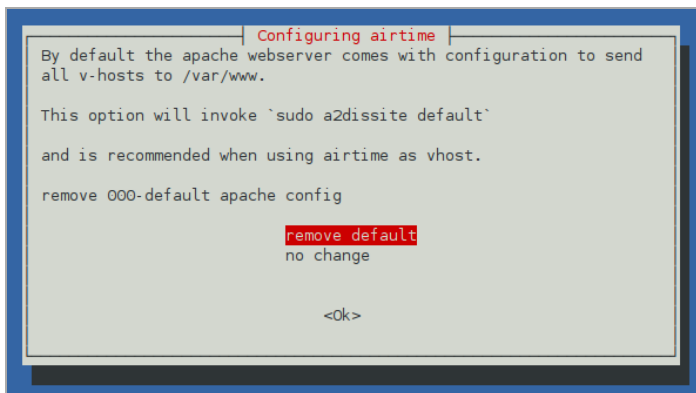
If so, you will need to enter the domain name that your station staff will use to access Airtime. For a test server that will only be accessed directly from the same machine, you can use the setting of 'localhost' here.



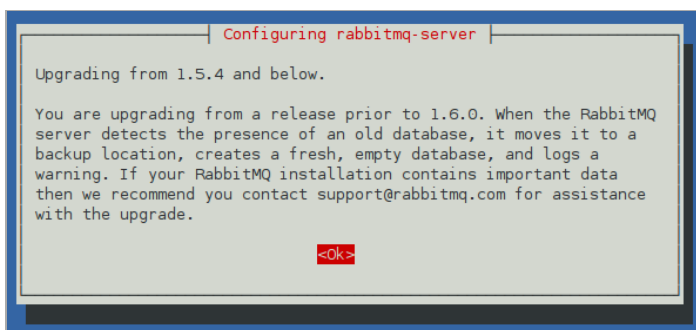
Next, set the contact email address of the server administrator, which is good practice in case of any server problems. For a test server, using an address at the localhost is acceptable.



Debian and Ubuntu servers are set up with a default Apache configuration, which might block station staff from accessing Airtime. If you wish, this default configuration can be removed automatically for you.



You may also be warned about upgrading the *rabbitmq-server* package. If you do not have an existing installation of RabbitMQ, it is safe to press the **Enter** key to continue.



CONFIGURE PHP

Edit the *php.ini* file to change PHP settings for the server to those that Airtime requires.

```
$ sudo nano /etc/php5/apache2/php.ini
```

```
GNU nano 2.2.2      File: /etc/php5/apache2/php.ini      Modified

; Development Value: 60 (60 seconds)
; Production Value: 60 (60 seconds)
; http://php.net/max-input-time
max_input_time = 60

; Maximum input variable nesting level
; http://php.net/max-input-nesting-level
;max_input_nesting_level = 64

; Maximum amount of memory a script may consume (128MB)
; http://php.net/memory-limit
memory_limit = 256M

;;;;;;;;;;;;;;;;;;;;;;;;;
; Error handling and logging ;
;;;;;;;;;;;;;;;;;;;;;;;;;

; This directive informs PHP of which errors, warnings and notices you wo$
; it to take action for. The recommended way of setting values for this
; directive is through the use of the error level constants and bitwise
; operators. The error level constants are below here for convenience as $
; some common settings and their meanings.

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit    ^J Justify  ^W Where Is ^V Next Page ^U UnCut Tex ^T To Spell
```

This is a long file, so use the search tool (press Ctrl+W) to find the particular lines that you're looking for. The recommended initial settings for Airtime are:

```
memory_limit = 256M

magic_quotes_gpc = Off

file_uploads = On

upload_tmp_dir = /tmp

phar.readonly = Off
```

If any of the above lines are commented out with a semi-colon at the beginning, you will need to remove that semi-colon for the setting to work.

You will also need to set the time zone that Airtime will display to match local time at your station. Find the line in the *php.ini* file which begins *date.timezone*, remove the semi-colon comment if present, and add the required time zone to the end of the line. For example:

```
date.timezone = "America/Toronto"
```

The time zone value should be in quotes, as above. You can find the correct value for your station's time zone in the appendix of this book.

```
GNU nano 2.2.2      File: /etc/php5/apache2/php.ini      Modified

[Date]
; Defines the default timezone used by the date functions
; http://php.net/date.timezone
date.timezone = "America/Toronto"

; http://php.net/date.default-latitude
;date.default_latitude = 31.7667

; http://php.net/date.default-longitude
;date.default_longitude = 35.2333

; http://php.net/date.sunrise-zenith
;date.sunrise_zenith = 90.583333

; http://php.net/date.sunset-zenith
;date.sunset_zenith = 90.583333

^G Get Help  ^O WriteOut  ^F Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page ^U UnCut Tex ^T To Spell
```

Press **Ctrl+O** to save the *php.ini* file, then **Ctrl+X** to exit the *nano* editor.

SECURE AND ENABLE ICECAST

If you have installed the Icast streaming media server, before running it for the first time you should edit the file */etc/icecast2/icecast.xml* to change the default `<source-password>`, `<relay-password>` and `<admin-password>` values from 'hackme' to something more secure.

```
$ sudo nano /etc/icecast2/icecast.xml
```

```
GNU nano 2.2.2      File: /etc/icecast2/icecast.xml

      change from the default 64k. Applies to all mountpoints -->
      <burst-size>65535</burst-size>
</limits>

<authentication>
  <!-- Sources log in with username 'source' -->
  <source-password>hackme</source-password>
  <!-- Relays log in username 'relay' -->
  <relay-password>hackme</relay-password>

  <!-- Admin logs in with the username given below -->
  <admin-user>admin</admin-user>
  <admin-password>hackme</admin-password>
</authentication>

<!-- set the mountpoint for a shoutcast source to use, the default if$
specified is /stream but you can change it here if an alternativ$
wanted or an extension is required
```

Then set up the Icast server to start automatically:

```
$ sudo nano /etc/default/icecast2
```

by setting the value of *ENABLE* to *true* on the last line of the */etc/default/icecast2* file:

```
ENABLE=true
```

Save and close the file with **Ctrl+O** and **Ctrl+X**, then start Icast:

```
$ sudo service icecast2 start
```

```
Starting icecast2: Starting icecast2
Detaching from the console
icecast2.
```

CONFIGURING LIQUIDSOAP

Before running Airtime, you need to edit the Liquidsoap configuration file to tell the system what kind of output you require: to the soundcard, direct Ogg Vorbis streaming, direct MP3 streaming, or all three. Open the Liquidsoap configuration file with:

```
$ sudo nano /etc/airtime/liquidsoap.cfg
```

For soundcard output, change the value of `output_sound_device` to `true`. You can also set the values of `output_icecast_vorbis`, `output_icecast_mp3` to `true` or `false`, and several other configuration options in this file.

In the `stream settings` section, configure `icecast_host` and `icecast_pass` for your Icecast server, if you are using the direct streaming option. The IP address `127.0.0.1` is the standard address of `localhost`, which you would use if Airtime and Icecast were installed on the same machine. The port number `8000` is the default server port for Icecast.

For a production server, you will probably want to change the `webstream mountpoint names` and `webstream metadata settings` to suit your station.

```
#####
# stream settings                               #
#####
icecast_host = "127.0.0.1"
icecast_port = 8000
icecast_pass = "hackme"

#####
# webstream mountpoint names                     #
#####
mount_point_mp3 = "airtime.mp3"
mount_point_vorbis = "airtime.ogg"

#####
# webstream metadata settings                   #
#####
icecast_url = "http://airtime.sourcefabric.org"
icecast_description = "Airtime Radio!"
icecast_genre = "genre"

#####
#liquidsoap output settings                     #
#####
output_sound_device = true
output_icecast_vorbis = true
output_icecast_mp3 = false

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^L UnCut Text ^T To Spell
```

Finally, reboot the server so that the software can be initialized correctly. After that, you should be able to log in to the Airtime administration interface, as shown in the **Getting started** chapter.

4. MANUAL INSTALLATION

You do not normally need to install Airtime manually, unless you are testing a development version of the software. Building Airtime from source is not recommended unless you have experience of working with Git repositories and compilers.

To install from the Airtime release tarball, first install the list of dependencies. For example, on Ubuntu 10.04 (Lucid Lynx) LTS you could enter the command:

```
$ sudo apt-get install apache2 curl daemontools daemontools-run ecasound \
gzip libao-ocaml libapache2-mod-php5 libcamomile-ocaml-dev libesd0 \
libmad-ocaml libmp3lame0 libmp3lame-dev libportaudio2 libsamplerate0 \
libsoundtouch-ocaml libtaglib-ocaml libvorbis-ocaml-dev mpg123 multitail \
odbc-postgresql oggvideotools openssl php-pear php5-curl php5-gd \
php5-pgsql poc-streamer pwg \
python python-configobj python-mutagen \
python-pip python-setuptools rabbitmq-server tar unzip
```

Install the Python modules that Airtime requires:

```
$ sudo pip install kombu
$ sudo pip install poster
```

The final dependency to install is *phing* (note that you must use the version number shown):

```
$ sudo mkdir -p /tmp/pear/cache
$ sudo pear channel-discover pear.phing.info
$ sudo pear install phing/phing-2.4.2
```

DOWNLOAD AIRTIME

A link to download the latest tarball version of Airtime is available at:

http://www.sourcefabric.org/en/products/airtime_download/

For example, to download version 1.8.1 from SourceForge in the server console you could enter the command:

```
$ wget http://downloads.sourceforge.net/project/airtime/1.8.1/airtime-1.8.1.tar.gz
```

```
daniel@office:~$ wget http://downloads.sourceforge.net/project/airtime/1.8
.1/airtime-1.8.1.tar.gz
--2011-05-10 11:59:24-- http://downloads.sourceforge.net/project/airtime/
1.8.1/airtime-1.8.1.tar.gz
Resolving downloads.sourceforge.net... 216.34.181.59
Connecting to downloads.sourceforge.net|216.34.181.59|:80... connected.
HTTP request sent, awaiting response... 302 Found
Location: http://ignum.dl.sourceforge.net/project/airtime/1.8.1/airtime-1.
8.1.tar.gz [following]
--2011-05-10 11:59:24-- http://ignum.dl.sourceforge.net/project/airtime/1
.8.1/airtime-1.8.1.tar.gz
Resolving ignum.dl.sourceforge.net... 62.109.128.11, 2001:1ab0:7elf:1:230:
48ff:fed1:9c0a
Connecting to ignum.dl.sourceforge.net|62.109.128.11|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11027977 (11M) [application/x-gzip]
Saving to: `airtime-1.8.1.tar.gz'

100%[=====>] 11,027,977 638K/s in 18s

2011-05-10 11:59:42 (611 KB/s) - `airtime-1.8.1.tar.gz' saved [11027977/11
027977]

daniel@office:~$ █
```

Unzip the file you have just downloaded to the installation directory `/var/lib/airtime/` with the following command:

```
$ sudo tar -xvzf airtime-1.8.1.tar.gz -C /var/lib/
```

Change the ownership of the installation directory to the `root` user so that it is more secure:

```
$ sudo chown -R root.root /var/lib/airtime/
```

Then enter the following commands to create the Airtime databases, tables, and directories:

```
$ cd /var/lib/airtime/install/
$ sudo php airtime-install.php
```

CONFIGURE APACHE

Check that the Apache web server modules that Airtime requires are enabled:

```
$ sudo a2enmod php5 rewrite
```

The server should respond:

```
Module php5 already enabled
Module rewrite already enabled
```

Next, create the Airtime virtual host configuration file for Apache:

```
$ sudo nano /etc/apache2/sites-available/airtime
```

and enter the information below, substituting your system administrator's email address for `admin@example.com`. Make sure you set the `DocumentRoot` and `Directory` paths correctly. This should match the `public` sub-directory of the installation directory that you unzipped the Airtime tarball into, such as `/var/lib/airtime/public` in this example.

```
<VirtualHost *:80>
    ServerAdmin admin@example.com
    DocumentRoot /var/lib/airtime/airtime_mvc/public

    SetEnv APPLICATION_ENV "development"

    <Directory /var/lib/airtime/airtime_mvc/public>
        DirectoryIndex index.php
        AllowOverride all
```

```

        Order allow,deny
        Allow from all
    </Directory>
</VirtualHost>

```

Press **Ctrl+O** to save the file, then **Ctrl+X** to exit the *nano* editor. Then enter the command:

```
$ sudo a2ensite airtime
```

The server should respond:

```

Enabling site airtime.
Run '/etc/init.d/apache2 reload' to activate new configuration!

```

As suggested by the output of the command above, reload the web server configuration.

```
$ sudo /etc/init.d/apache2 reload
```

The server should respond:

```
* Reloading web server config apache2
```

CONFIGURE PHP

Edit the *php.ini* file to change PHP settings for the server to those that Airtime requires.

```
$ sudo nano /etc/php5/apache2/php.ini
```

```

GNU nano 2.2.2      File: /etc/php5/apache2/php.ini      Modified

; Development Value: 60 (60 seconds)
; Production Value: 60 (60 seconds)
; http://php.net/max-input-time
max_input_time = 60

; Maximum input variable nesting level
; http://php.net/max-input-nesting-level
;max_input_nesting_level = 64

; Maximum amount of memory a script may consume (128MB)
; http://php.net/memory-limit
memory_limit = 256M

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; Error handling and logging ;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;

; This directive informs PHP of which errors, warnings and notices you wo$
; it to take action for. The recommended way of setting values for this
; directive is through the use of the error level constants and bitwise
; operators. The error level constants are below here for convenience as $
; some common settings and their meanings.

^G Get Help  ^O WriteOut  ^R Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page ^L UnCut Tex ^T To Spell

```

This is a long file, so use the search tool (press **Ctrl+W**) to find the particular lines that you're looking for. The recommended initial settings for Airtime are:

```

memory_limit = 256M
magic_quotes_gpc = Off
file_uploads = On
upload_tmp_dir = /tmp
phar.readonly = Off

```

If any of the above lines are commented out with a semi-colon at the beginning, you will need to remove that semi-colon for the setting to work.

You will also need to set the time zone that Airtime will display to match local time at your station. Find the line in the *php.ini* file which begins *date.timezone*, remove the semi-colon comment if present, and add the required time zone to the end of the line. For example:

```
date.timezone = "America/Toronto"
```

The time zone value should be in quotes, as above. You can find the correct value for your server's time zone in the appendix of this manual.

Press Ctrl+O to save the *php.ini* file, then Ctrl+X to exit the *nano* editor.

SECURE AND ENABLE ICECAST

If you have installed the Icecast streaming media server, before running it for the first time you should edit the file */etc/icecast2/icecast.xml* to change the default *<source-password>*, *<relay-password>* and *<admin-password>* values from 'hackme' to something more secure.

```
$ sudo nano /etc/icecast2/icecast.xml
```

```
GNU nano 2.2.2      File: /etc/icecast2/icecast.xml

    change from the default 64k. Applies to all mountpoints -->
    <burst-size>65535</burst-size>
</limits>

<authentication>
  <!-- Sources log in with username 'source' -->
  <source-password>hackme</source-password>
  <!-- Relays log in username 'relay' -->
  <relay-password>hackme</relay-password>

  <!-- Admin logs in with the username given below -->
  <admin-user>admin</admin-user>
  <admin-password>hackme</admin-password>
</authentication>

<!-- set the mountpoint for a shoutcast source to use, the default if$
    specified is /stream but you can change it here if an alternativ$
    wanted or an extension is required
```

Then set up the Icecast server to start automatically:

```
$ sudo nano /etc/default/icecast2
```

by setting the value of *ENABLE* to *true* on the last line of the */etc/default/icecast2* file:

```
ENABLE=true
```

Save and close the file with Ctrl+O and Ctrl+X, then start Icecast:

```
$ sudo service icecast2 start
```

The server should respond:

```
Starting icecast2: Starting icecast2
Detaching from the console
icecast2.
```

SET UP AND INSTALL AIRTIME

You can open the *liquidsoap.cfg* file for editing with the command:

```
$ sudo nano /etc/airtime/liquidsoap.cfg
```

To set up Airtime for direct streaming, set the value of *icecast_pass* to the <source-password> value that you set in the Icecast configuration file. If you are streaming to a separate Icecast server, set the value of *icecast_host* to the domain name or IP address of the other machine. The value of *icecast_port* can be left as the default of 8000, unless you have been provided with a different port number by the system administrator of the Icecast server.

```
#####
# stream settings                                     #
#####
icecast_host = "127.0.0.1"
icecast_port = 8000
icecast_pass = "hackme"

#####
# webstream mountpoint names                         #
#####
mount_point_mp3 = "airtime.mp3"
mount_point_vorbis = "airtime.ogg"

#####
# webstream metadata settings                       #
#####
icecast_url = "http://airtime.sourcefabric.org"
icecast_description = "Airtime Radio!"
icecast_genre = "genre"

#####
#liquidsoap output settings                         #
#####
output_sound_device = true
output_icecast_vorbis = true
output_icecast_mp3 = false

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^L UnCut Text ^T To Spell
```

You can also configure the values of *mount_point_mp3*, *mount_point_vorbis*, *icecast_url*, *icecast_description*, and *icecast_genre* to suit your station.

If you require direct output to an ALSA soundcard device on the Airtime server, in addition to the Icecast stream, change the value of *output_sound_device* from the default of *false* to *true*:

```
output_sound_device = true
```

If you do not require an Icecast stream in either Ogg Vorbis or MP3 format, you can set the values of *output_icecast_vorbis* or *output_icecast_mp3*, respectively, to *false*. Then save and close the file with Ctrl+O and Ctrl+X.

Optionally, you may wish to edit the file */etc/airtime/airtime.conf* to set the directory where Airtime media files are stored. For example, you may wish to store media on a RAID array which is not part of the server's root filesystem.

```
$ sudo nano /etc/airtime/airtime.conf
```

Find the line which begins *base_files_dir* and change the directory path to the one that you require, for example:

```
base_files_dir = /mnt/raid10/media
```

You can also set the PostgreSQL database host, and the username and password to connect to the database with in this file. Save and close the file with Ctrl+O and Ctrl+X.

```
GNU nano 2.2.2      File: /etc/airtime/airtime.conf      Modified

[database]
host = localhost
dbname = airtime
dbuser = airtime
dbpass = airtime

[rabbitmq]
host = 127.0.0.1
port = 5672
user = guest
password = guest
vhost = /

[general]
api_key = RQ3RR4QT2VC2ZF0GMIGQ
web_server_user = www-data
airtime_dir = /var/lib/airtime
base_files_dir = /mnt/raid10/media

[soundcloud]
connection_retries = 3
time_between_retries = 60

^G Get Help  ^O WriteOut  ^R Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is ^V Next Page ^U UnCut Tex ^T To Spell
```

Finally, reboot your server so that *daemontools* can initialize correctly.

5. SETTING THE SERVER TIME

Accurate time keeping on your server is vital for optimal Airtime performance. You can confirm that the date and time of your server are set correctly with the `date` command:

```
$ date
```

The server should respond with the date, time, time zone and year in a format similar to the following example:

```
Mon Mar  7 14:59:17 GMT 2011
```

The time zone reported should match the continent and city that you set in the `php.ini` file during Airtime installation, such as `GMT` in the example above matching *Europe/London*. If not, see the section **Adjusting the server time zone** below.

Although it is possible to set the date and time of the server manually, this is not recommended because the server clock can drift over time, compromising the accuracy of your broadcast schedule. If your Airtime server is permanently connected to the Internet, you can synchronize your server to a time server with the `ntp` program. If `ntp` is not yet installed, you can enter the following command on Debian or Ubuntu:

```
$ sudo apt-get install ntp
```

Optionally, open the `ntp` configuration file in the `nano` editor to add further time server names:

```
$ sudo nano /etc/ntp.conf
```

On Ubuntu GNU/Linux, the default time server is `ntp.ubuntu.com`, but there are many other time servers available on the public Internet, including the group of servers listed at <http://www.pool.ntp.org/> for each country. Using a variety of NTP servers located closely to your Airtime server will produce the most accurate results. For example, for a server in the United Kingdom you could use the following list:

```
# You do need to talk to an NTP server or two (or three).
server ntp.ubuntu.com
server 0.uk.pool.ntp.org
server 1.uk.pool.ntp.org
server 2.uk.pool.ntp.org
server 3.uk.pool.ntp.org
```

Enter the server names you require, press `Ctrl+O` to write out the `/etc/ntp.conf` file, then `Ctrl+X` to exit `nano`. Restart the `ntp` service with:

```
$ sudo service ntp restart
```

The server should respond:

```
* Stopping NTP server ntpd          [ OK ]
* Starting NTP server ntpd         [ OK ]
```

Then use the `ntpq -p` command to confirm that `ntp` is working. This command should produce output similar to the following screenshot:

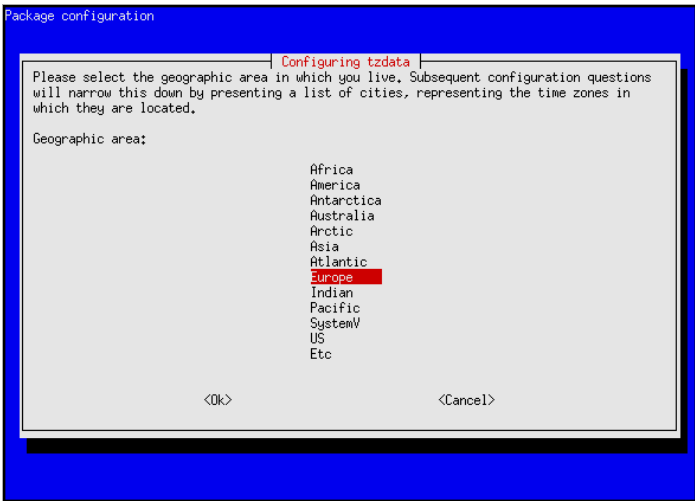
```
daniel@office:~$ ntpq -p
      remote           refid      st t when poll reach  delay  offset  jitter
=====
europium.canoni 193.79.237.14    2 u  49   64    3 131.386 141.365  1.328
dnscache-slough 213.222.193.35  2 u  45   64    3  23.594  84.480 31.209
ntp2.exa-networ 195.66.241.10   2 u  45   64    3  32.222  87.153 61.082
time.xilo.net    194.35.252.7   2 u  45   64    3  24.055  86.010 19.211
mantaray.netine 249.240.53.144  2 u  46   64    3  24.754  91.331 65.929
daniel@office:~$
```

ADJUSTING THE SERVER TIME ZONE

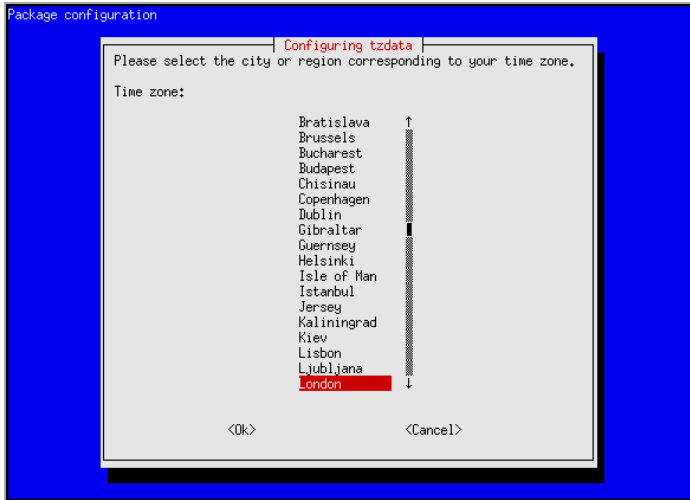
If your server is set to a different time zone than the one that you set during Airtime installation, your broadcast schedule may be played out at incorrect times. The datacenter which hosts your Airtime server could be located anywhere in the world. Some servers are set to Coordinated Universal Time or UTC (similar to Greenwich Mean Time or GMT), regardless of their location. If this is not appropriate for your station, on a Debian or Ubuntu server you can reconfigure the *tzdata* (time zone data) package with the command:

```
$ sudo dpkg-reconfigure tzdata
```

This command opens a menu in which you can select the continent that you require, by pressing the Enter key.



The next step is to select your nearest city, again by pressing the Enter key. The appropriate time zone is selected according to the information that you have entered.



The console output from the `dpkg-reconfigure tzdata` command will confirm the new setting.

```
Current default time zone: 'Europe/London'
Local time is now:      Mon Mar  7 15:04:58 GMT 2011.
Universal Time is now:  Mon Mar  7 15:04:58 UTC 2011.
```

6. USING THE IMPORT SCRIPT

If you have a large number of files in your media library, importing these files one at a time into a broadcast automation system would be time-consuming and tedious. That's why Airtime includes a script that can import an entire directory of files in one go.

COPYING VERSUS LINKING

You must specify one of two options for using the import script: Either to **copy** files into Airtime's storage server, or to **link** to files elsewhere. Each option has advantages and disadvantages, so you will have to think about how the files will be used in your station long-term.

- For files that are *copied*, you may run into problems with hard disk space if you do not remove files from the storage server periodically.
- For files that are *linked*, you must make sure that the files are actually going to be there at playout time, otherwise they will be skipped. For this reason, it is not recommended to use the link option for easily-removable storage (like MP3 players or USB memory sticks). There's a strong likelihood that the storage might be unplugged and taken away before playout time. It is also important to make sure that any external hard disk with linked files is powered on, and stays on.

The import script works from the command line, so you must first log into a console on the Airtime server. You need to specify the full file system path to the media files that you wish to import. Copying is specified by including the `-c` switch in the command:

```
$ sudo airtime-import -c /<path>/<to>/<your>/<files>
```

Linking is specified by using the `-l` switch instead:

```
$ sudo airtime-import -l /<path>/<to>/<your>/<files>
```

If the import is successful, the script will report the names of the files imported.

```
daniel@office:~$ sudo airtime-import -l /home/daniel/Music/strutsampler
=====
Airtime Import Script
=====
Importing: [00001] /home/daniel/Music/strutsampler/07 Cherchez Pas.mp3
Importing: [00002] /home/daniel/Music/strutsampler/02 Dat Soca Boat.mp3
Importing: [00003] /home/daniel/Music/strutsampler/04 Love And Death.mp3
Importing: [00004] /home/daniel/Music/strutsampler/10 Green Africa.mp3
Importing: [00005] /home/daniel/Music/strutsampler/06 Electricone.mp3
Importing: [00006] /home/daniel/Music/strutsampler/09 Wozani Mahipi.mp3
Importing: [00007] /home/daniel/Music/strutsampler/03 My Oasis.mp3
Importing: [00008] /home/daniel/Music/strutsampler/01 Love Dancing.mp3
Importing: [00009] /home/daniel/Music/strutsampler/08 Emakhaya.mp3
Importing: [00010] /home/daniel/Music/strutsampler/05 (Do The) Spanish Hus
tle (Danny Krivit Edit).mp3
Importing: [00011] /home/daniel/Music/strutsampler/1-14 Justo Betancourt -
Pa' Bravo Yo.mp3
Importing: [00012] /home/daniel/Music/strutsampler/02 Pardon.mp3
=====
*** Import mode: link
*** Files imported: 12
*** Duplicate files (not imported):
*** Total: 12 files in 4 seconds = 3.0 files/second.
=====
daniel@office:~$ █
```

If you do not have write access to the filesystem, or the files are duplicates of files that have already been imported, the script will warn you with an error message.

METADATA QUALITY

The *airtime-import* script automatically imports any metadata that is in the files' ID3 tags. If these tags are incorrect or are missing information, you will have to either edit the metadata before importing them, or suffer the consequences. For example, if the tags have artist or genre metadata missing, it will be impossible to search for, playlist or schedule the media according to these criteria.

The program **Audio Tag Tool** can be useful for batch setting and editing ID3 tags before importing files into your Airtime server. On an Ubuntu desktop machine, you can install Audio Tag Tool with the command:

```
$ sudo apt-get install tagtool
```

After installation, you can run the program with the command:

```
$ tagtool
```

The *Tag Multiple Files* feature of the Audio Tag Tool program is a particularly useful time saver if you have a large archive of untagged files. Sometimes there is artist or title information in the filename, which can be converted into an ID3 tag automatically.



The screenshot shows the 'Tag Multiple Files' window of the Audio Tag Tool. At the top, there is a toolbar with five icons: a notepad with a pencil, a notepad with a pencil and a red 'X', a notepad with a red 'X', a CD with a circular arrow, and a document with a green triangle. Below the toolbar, the window has a title bar 'Tag Multiple Files'. The main content area is divided into three sections. The first section, 'File Name Format', has a text box containing '<track>. <title>' and a dropdown arrow. The second section, 'Character and Case Conversion', has a 'Configure' button. The third section, 'Tag', has a checked checkbox 'Set tags based on file names'. Below this, there are several input fields: 'Title:' with a dropdown showing '<from filename>', 'Artist:', 'Album:', 'Year:' with a text box, 'Genre:' with a dropdown, 'Comnt.:', and 'Track:' with a dropdown showing '<fn>' and an 'Auto-increment' checkbox.

USING AIRTIME

- 7. GETTING STARTED**
- 8. MANAGING USERS**
- 9. NOW PLAYING**
- 10. ADD MEDIA**
- 11. PLAYLIST BUILDER**
- 12. CALENDAR**
- 13. HELP**

7. GETTING STARTED

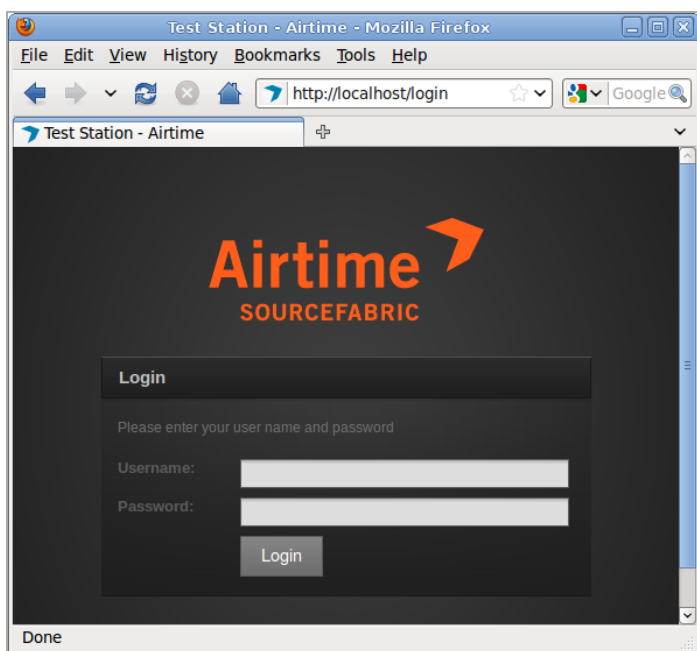
If the Airtime server has a web browser installed, you can access the administration interface by opening the address:

`http://localhost/login`

If you have set up Airtime so that it can be accessed from other computers, you would use a domain name instead. For example:

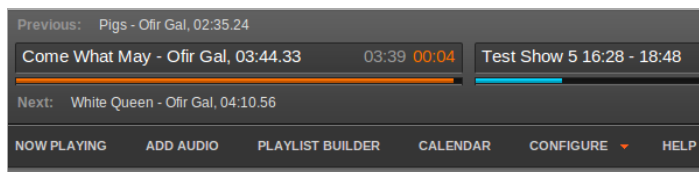
`http://airtime.example.com/login`

You can log in for the first time with the username *admin* and password *admin*.

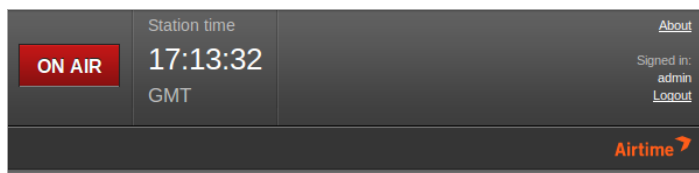


After you have logged in, you should see the **Master Panel**, which is present at the top of every page of the Airtime interface. On the left hand side, the Master Panel displays the details of the **Previous** file played out, the current file playing (with an orange progress bar and time elapsed/time remaining), and the details of the **Next** file due to play. It also displays the name and scheduled time of the current show, with a blue progress bar.

Beneath this side of the Master Panel is the main navigation menu, with sub-menus labeled **Now Playing**, **Add Audio**, **Playlist Builder**, **Calendar**, **Configure** and **Help**. We'll be looking at the contents of these menus in the following chapters of this manual.

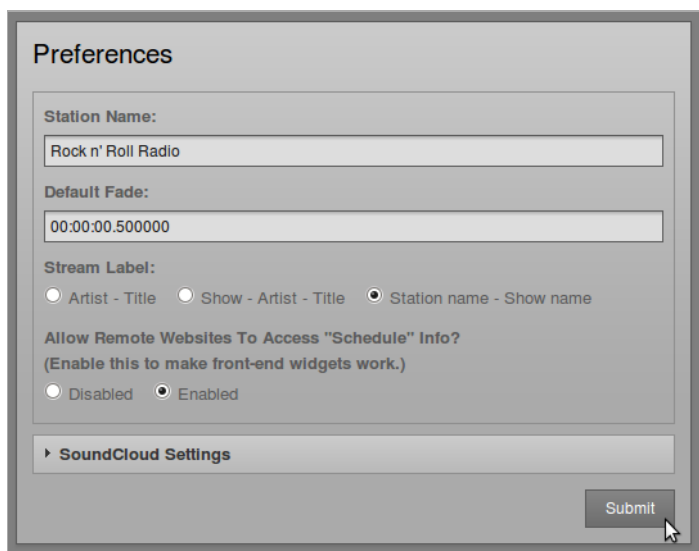


On the right hand side, the Master Panel features an **On Air** indicator, which turns from gray to red whenever a file is being played out. There is also a clock indicating the **Station time** and time zone. Over on the far side, an **About** link opens a pop-up window with some information about Airtime. The name of the user currently logged in is displayed, and below this there is the link to **Logout**.

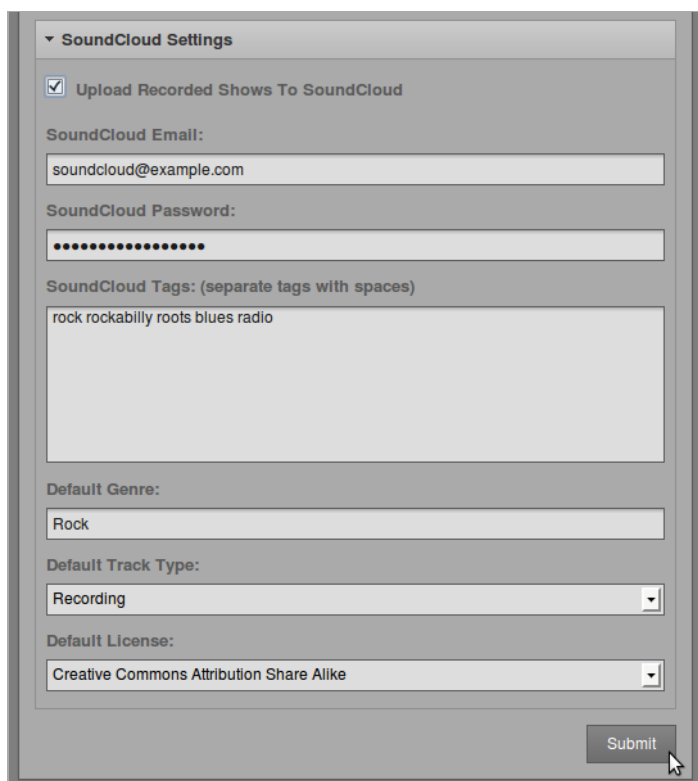


On the **Configure** menu, click **Preferences** to set your **Station Name** and the **Default Fade** time that you would like to set for automated crossfades. The **Stream Label** option allows you to set the metadata that will be sent with direct Icecast streams; *Artist and Title*, *Show, Artist and Title*, or *Station name and Show name*.

You can also enable live, read-only access to the Airtime schedule calendar for your station's public website with the **Allow Remote Websites to Access Schedule Info?** option, if you wish. (There is more about this feature in the **Advanced Configuration** section of this book). Then click the **Submit** button.



If your station has a SoundCloud account (on <http://soundcloud.com>), you may want to upload live show recordings to this service automatically. Click the small black triangle next to **SoundCloud Settings** to show this option. Apart from checking the **Upload Recorded Shows To SoundCloud** box, you will need to enter your SoundCloud login email address and password, and the metadata that SoundCloud will use to categorize your show recordings.



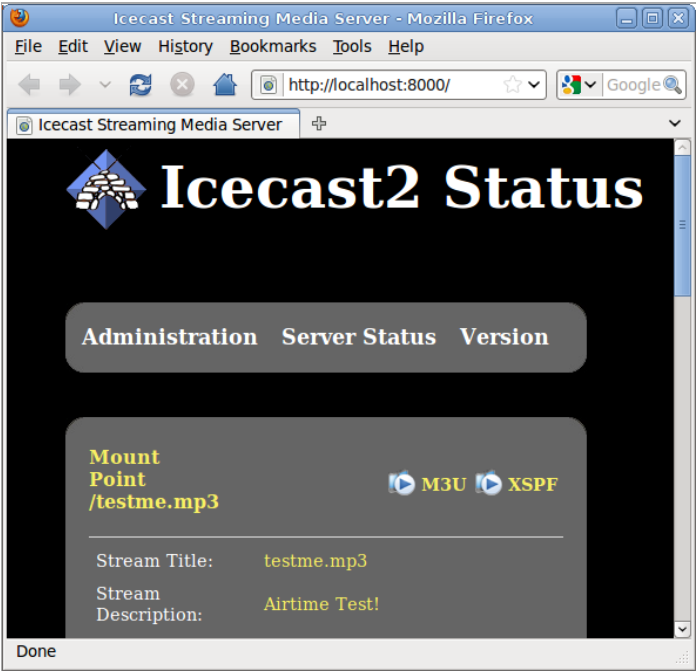
The screenshot shows a web form titled "SoundCloud Settings" with a dropdown arrow to its left. The form contains several fields: a checked checkbox labeled "Upload Recorded Shows To SoundCloud", a text field for "SoundCloud Email:" containing "soundcloud@example.com", a password field for "SoundCloud Password:" with masked characters, a text area for "SoundCloud Tags: (separate tags with spaces)" containing "rock rockabilly roots blues radio", a text field for "Default Genre:" containing "Rock", a dropdown menu for "Default Track Type:" with "Recording" selected, and another dropdown menu for "Default License:" with "Creative Commons Attribution Share Alike" selected. A "Submit" button is located at the bottom right of the form, with a mouse cursor hovering over it.

CHECKING THE STREAM

If you have enabled the streaming option when you installed Airtime, you can check that the Icecast server is running by opening port 8000 of the server in your web browser. For example, on the server itself, you can use:

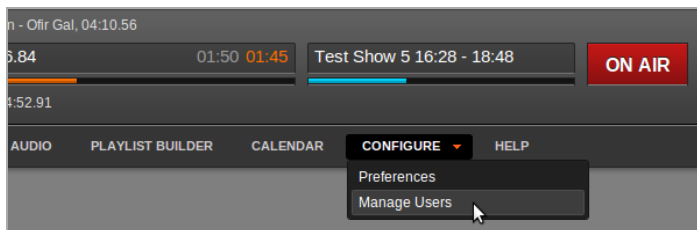
```
http://localhost:8000/
```

You should see the Icecast status page, with details of the connection that Airtime has made to Icecast. If you have only just installed Airtime, there won't be any media playing out yet.

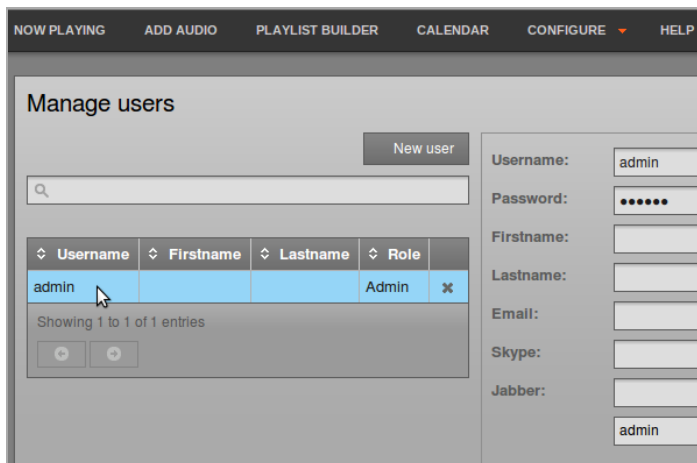


8. MANAGING USERS

You should set a new administrator password immediately, using the **Manage Users** entry on the **Configure** menu.



On the left hand side of the **Manage Users** page, click on *admin* in the user list. The details for this user will appear in the box on the right hand side. At the moment, the *admin* user only has a **Username** and a **Password**.



Enter a secure password (as long and as varied as is practical) into the **Password** field. Keeping this password secure is essential for the smooth running of your station, because it enables access to all scheduling and management features. You can also enter other details for your user account on this page, including your full name and contact details. Then click the **Submit** button.

New user

Username:

Password:

Firstname:

Lastname:

Email:

Skype:

Jabber:

▼

submit

name	Role	
	Admin	✕

To add further user accounts to the system, one for each of your station staff that need access to Airtime, click the **New user** button. Enter a username, password and contact details, and then select the user **Role** from the drop down menu, which can be *admin*, *host*, or *guest*. The difference between these roles is:

- An *admin* (station manager) has read and write access to all the features of Airtime. This role should be reserved for trusted staff members only.
- A *host* (presenter, or DJ) only has write access to features related to the specific shows assigned to them by an *admin*. The *host* can read data for other shows, but not write to them. This read access to other shows helps hosts plan their own shows, for instance avoiding the scenario where two DJs play the same music by coincidence.
- A *guest* can log in to read the forthcoming schedule or playlists, but has no write permission for any feature. The group of guests might include the station accountant, or the show assistants.

New users that you add will be shown in the list on the left-hand side of the **Manage Users** page. If you have a large number of users on the system, you can use the search tool above the list (which has a magnifying glass icon) to identify specific user accounts. Click on the list headings to sort the search results by *Username*, *Firstname*, *Lastname* or *Role*. To remove a user account, click the small **x** icon to the right side of its row in the list.

9. NOW PLAYING

This page provides two views of the files your station is playing, which can be switched using the **Day View** and **Now View** buttons in the top right corner of the administration interface. If you've only just installed Airtime, there won't be any files shown in either view yet.

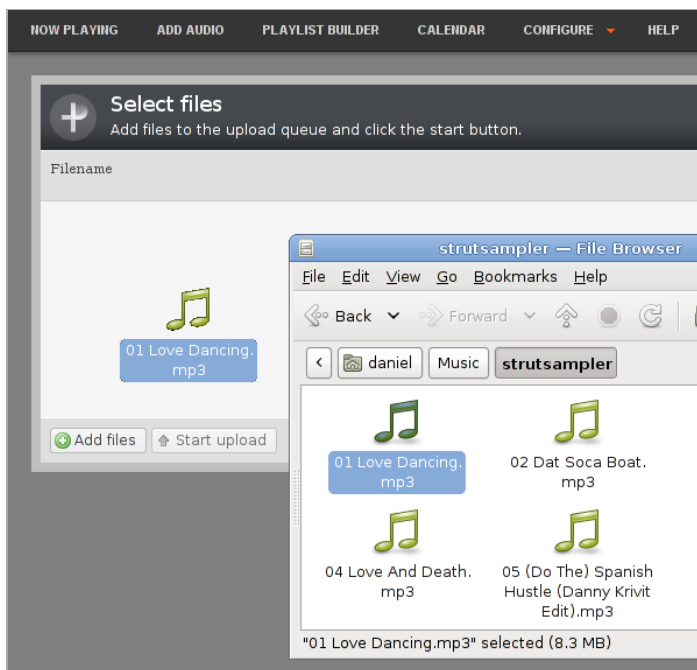
The default is **Now View**, in which files that have already been played are removed from the top of the list automatically. Show titles have a blue background, while individual files have a gray background. The row for the currently playing file is shown with an orange background. Any underbooked shows (shows with insufficient content to fill the time allowed) are displayed with a row indicating the length of the gap in seconds. The **Gap until show end** rows have a red background.

NOW PLAYING ADD MEDIA PLAYLIST BUILDER CALENDAR CONFIGURE ▾ HELP				
Date	Start	End	Duration	Song
Drive-time Show: 15:57:00 - 16:27:00				
2011-03-30	15:57:00	16:00:21.90	00:03:21.90	Ozon
2011-03-30	16:00:21.90	16:05:52.51	00:05:30.60	Fuego Camina Conmigo
2011-03-30	16:05:52.51	16:09:40.66	00:03:48.15	I'm perfect for you (russian version)
2011-03-30	16:09:40.66	16:12:46.00	00:03:05.33	BrakeOut
2011-03-30	16:12:46.00	16:15:53.53	00:03:07.53	catching the sun
2011-03-30	16:15:53.53	16:21:12.30	00:05:18.77	Moonlight Sonata
2011-03-30	16:21:12.30	16:25:36.87	00:04:24.56	Hydrate - Kenny Beltrey
2011-03-30	16:25:36.87	16:28:57.84	00:03:20.97	Con Nombre De Tango
Underbooked show: 12:00:00 - 12:20:00				
Gap until show end: 1200 seconds				

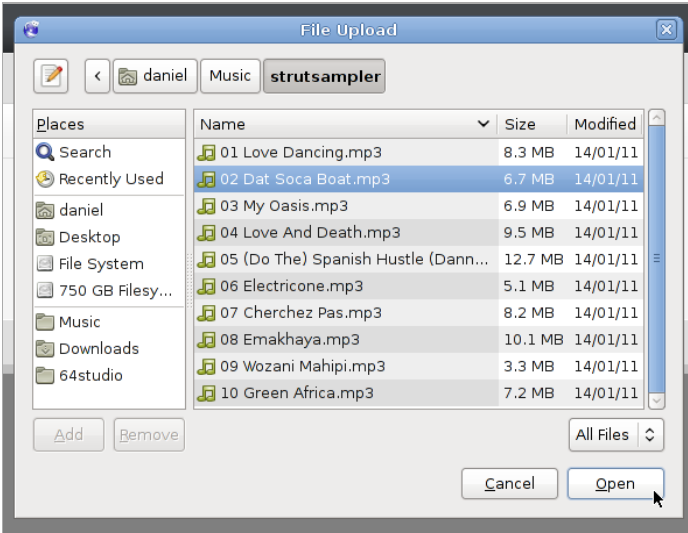
On the right hand side of the **Now View**, the **Playlist** and **Show** that each file is a part of is displayed. (Creating playlists and shows is covered in later chapters of this manual). If a show is overbooked (the total playout length is longer than the time allowed for the show), a red and white warning icon is shown in the **Status** column. The warning icon indicates that the file in this row will be faded out when the show ends.

10. ADD MEDIA

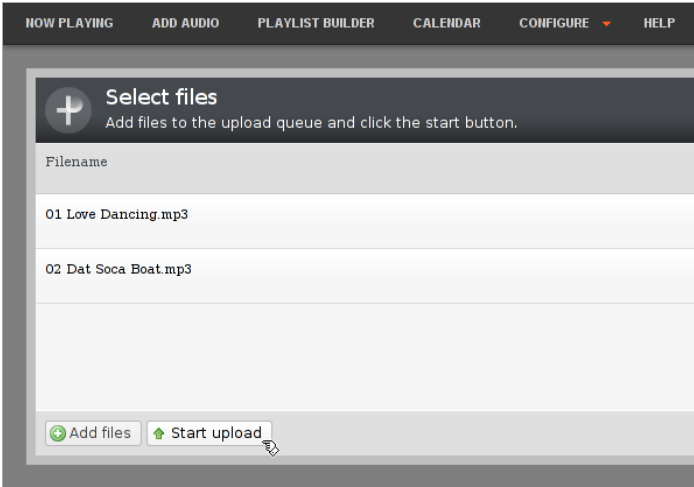
If you do not have access to the *airtime-import* script on the server, you can add files to the Airtime database using the **Add media** page of the administration interface. This page includes an upload queue for files which supports drag and drop from your computer's file manager, if you are using the recommended *Firefox 3.6* web browser.



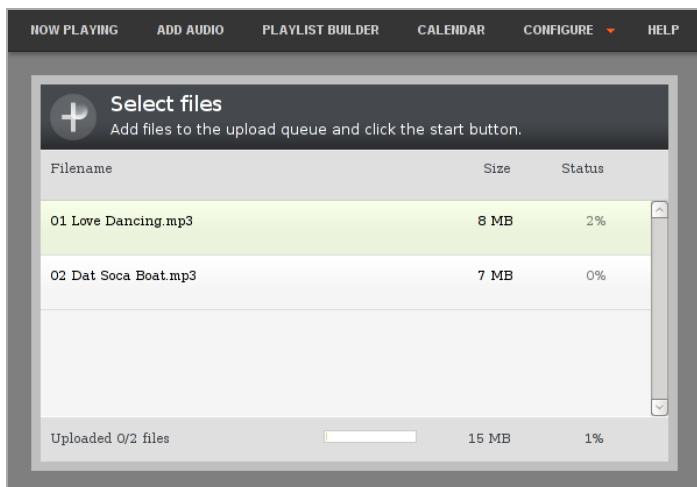
If your web browser does not support drag and drop, you can use the **Add files** button, which has a white plus sign in a green circle icon, to open a file selection window on your computer.



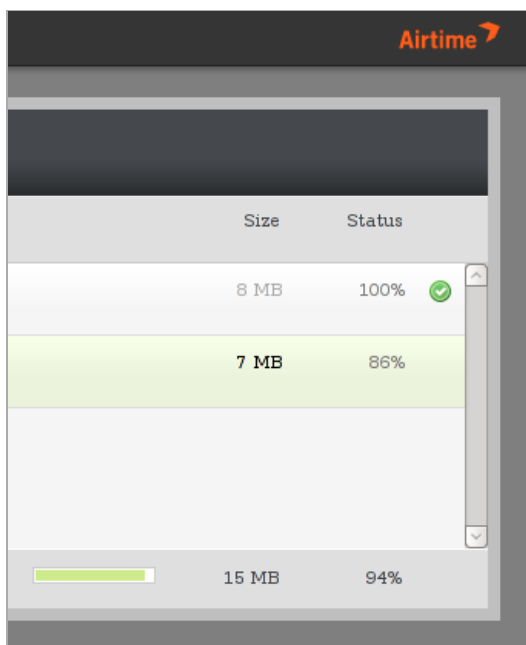
After you have added all the files that you require to the upload queue, click the **Start Upload** button, which has a green arrow icon.



The row of the file currently being uploaded is highlighted in pale green. At the bottom of the upload queue, a progress bar and percentage indicates how much of the upload has taken place so far.



Once it has been uploaded successfully, each file row displays a white check mark in a green circle icon.



Your files are now imported into the Airtime database, ready to be included in your broadcast playlist.

II. PLAYLIST BUILDER

This page of the Airtime interface enables you to search the media archive, sort and display the search results by the criteria that you choose, and drag and drop search results into an open playlist. You can also re-arrange the currently open playlist by dragging and dropping.

THE SEARCH TAB

On the right hand side of the Playlist Builder page, the **Search** tab lists both the media and the playlists in the Airtime archive, with ten entries shown per page by default. Click on the **Show entries** drop-down menu in the top right corner to select the display of 10, 25, 50 or 100 entries per page, according to your preference.

Click the column headings **Title**, **Creator**, **Album**, **Track**, **Length** or **Type** to sort the entries. In the **Type** column, audio files are represented by a loudspeaker icon, while playlists are represented with a document icon. At the bottom of the window, click the **First**, **Previous**, **Next**, **Last** or page number buttons to browse the media archive.

Search					
			Show 10 entries		
◆ Title	◆ Creator	◆ Album	Track ▲	◆ Length	◆ Type
Panic	Ofir Gal	PANIC	1	00:03:27.464	🔊
Blue Orchid	The White Stripes	Get Behind Me Satan	1	00:02:37.56	🔊
Gulag Orkestar	Beirut	Gulag Orkestar	1	00:04:38.961	🔊
Seven Nation Army	Ben L'Oncle Soul	Ben L'Oncle Soul	1	00:02:59.43	🔊
Dayvan Cowboy	Boards of Canada	Trans Canada Highway	1	00:05:01.453	🔊
The High Road	Broken Bells	Broken Bells	1	00:03:52.254	🔊
Who Was In My Room Last Night?	Butthole Surfers	Independent Worm Saloon	1	00:04:09.38	🔊
Blue Rondo A La Turk	The Dave Brubeck Quartet	Time Out	1	00:06:46.177	🔊
Balrog Boogie	Diablo Swing Orchestra	The Butcher's Ballroom	1	00:03:53.186	🔊
Bombay	El Guincho	Pop Negro	1	00:03:39.324	🔊
Showing 1 to 10 of 555 entries					
First Previous 1 2 3 4 5 Next Last					

Type a search term into the box in the upper left corner, with the magnifying glass icon. Like an Internet search engine, the filtered entries shown are refined as you type - there is no need to press the Enter key.

ON AIR

Station time

13:10:19

UTC

HELP

Search

Show 10

◇ Title	◇ Creator	◇ Album	◇ Track	◇ Length	◇
Love Dancing	Arthur's Landing	Strut Sampler 2011	1	00:06:01.299	🔊
Dat Soca Boat	Mighty Shadow	Strut Sampler 2011	2	00:04:49.985	🔊

Showing 1 to 2 of 2 entries (filtered from 555 total entries)

First

Previous

1

Next

Last

CREATING A NEW PLAYLIST

Once you have found the media that you require using the **Search** tab, you can create a new playlist on the left hand side of the **Playlist Builder** page. Click the **New** button to begin.

NOW PLAYING

ADD AUDIO

PLAYLIST BUILDER

CALENDAR

CONFIGURE ▾

New

No open playlist

Enter a **Title** and **Description** for the playlist, then click the **Submit** button. Setting good quality metadata here will help you find the playlist using the **Search** tab later, so you should be as descriptive as possible.

Now Playing

Add Audio

Playlist Builder

Calendar

Configure

Playlist Metadata

Title:

My playlist

Description:

This is an example playlist

Submit

Next, drag and drop files from the Search tab into the new playlist.

Now Playing

Add Audio

Playlist Builder

Calendar

Configure

Help

New

Delete

Done Editing

My playlist

00:00:00.000000

Empty playlist

Love Dancing

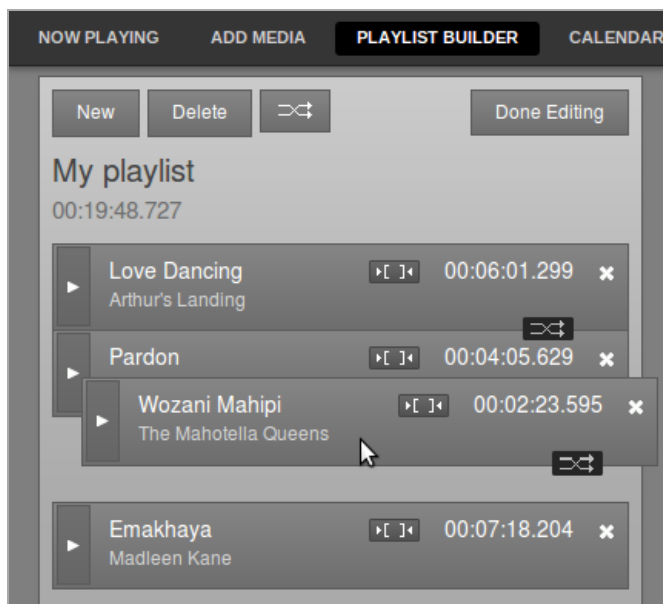
Arthur's Landing

Strut Sampler 2011

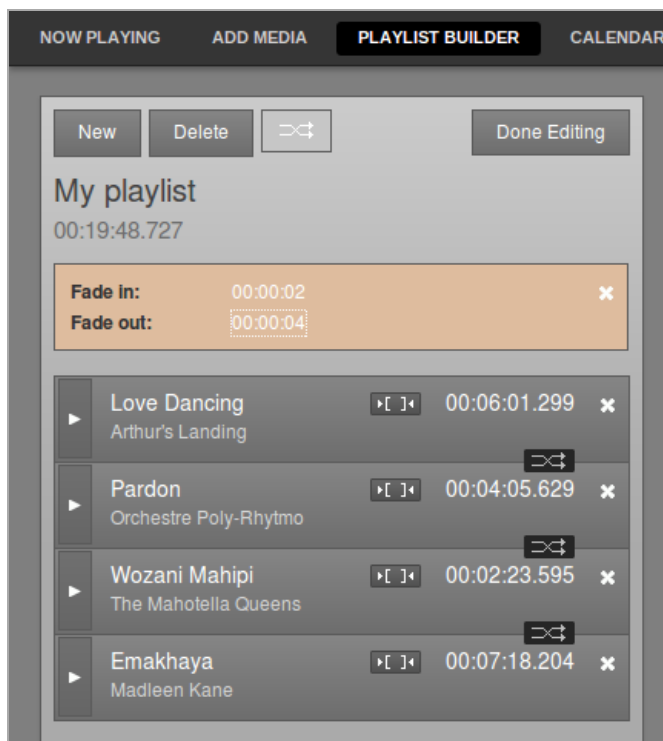
1

00:06:01.299

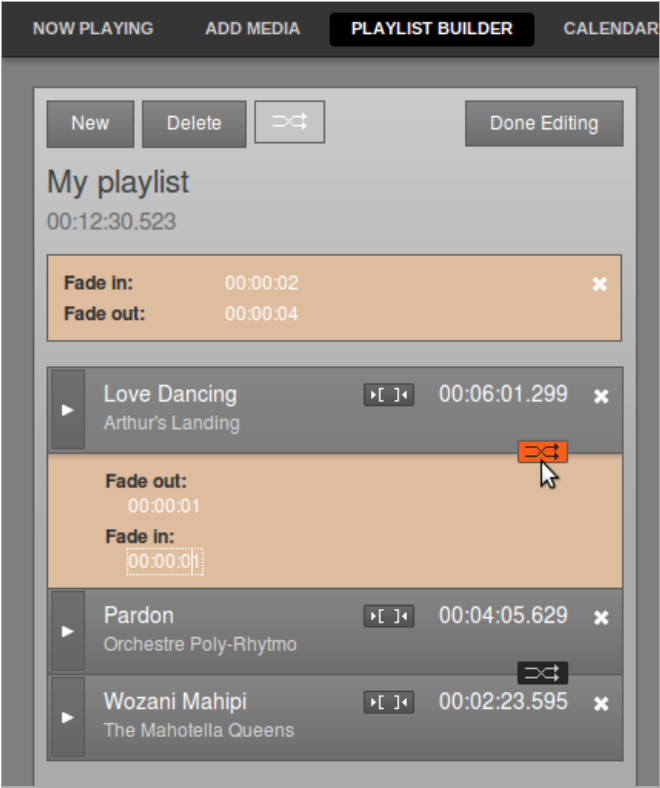
After dragging files into the new playlist, the total playlist time is displayed in the top left corner. Durations for individual files are shown in each row of the playlist. Click the small x icon on the right hand side of each row to remove a file from the playlist. You can also drag and drop files to re-order them.



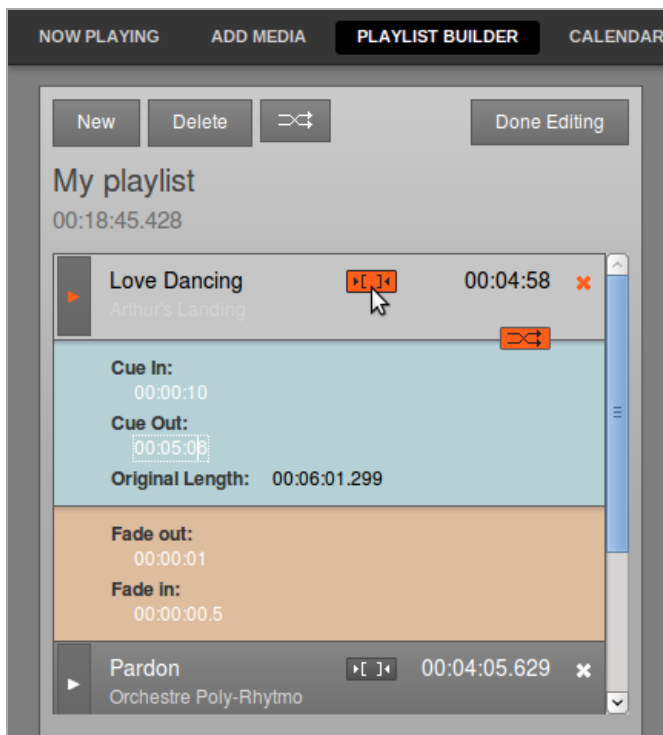
Click the playlist **Crossfade** button (two horizontal white arrows crossing in a gray rectangle), to the right of the **New** and **Delete** buttons, to open a beige bar in which you can set the **Fade in** and **Fade out** times for this playlist.



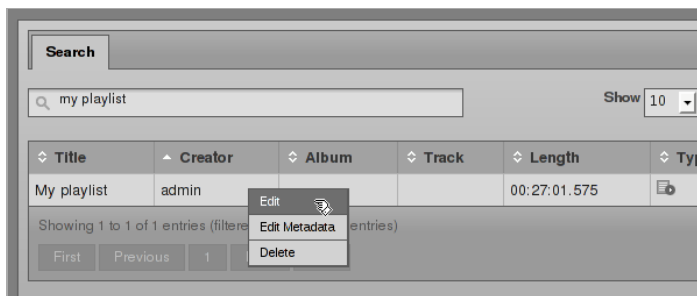
Click any one of the smaller orange **Crossfade** buttons between file rows to open a bar which enables you to set fade in and fade out times between two adjacent files in the playlist.



Each file in the playlist also has an orange button with two square brackets, which enables you to set cue in and cue out times for that particular file. The length of the file in the playlist is updated automatically, but the **Original Length** of the file is also displayed for your reference.

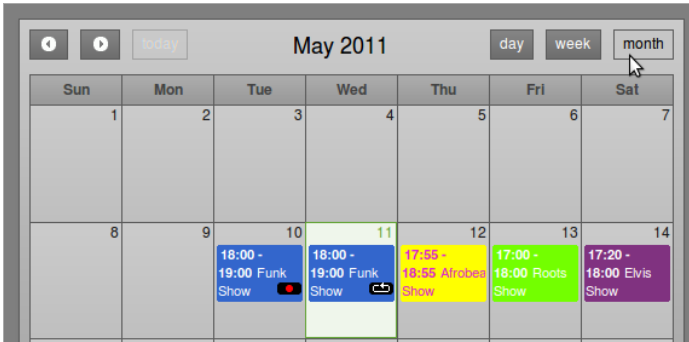


When your playlist is complete, click the **Done Editing** button. If you want to edit the playlist contents or the playlist metadata later, you can find it by **Title** or **Creator** using the **Search** tab. Click on the playlist in the search results list, and select **Edit** or **Edit Metadata** from the pop-up context menu. You can also **Delete** a playlist from this context menu.

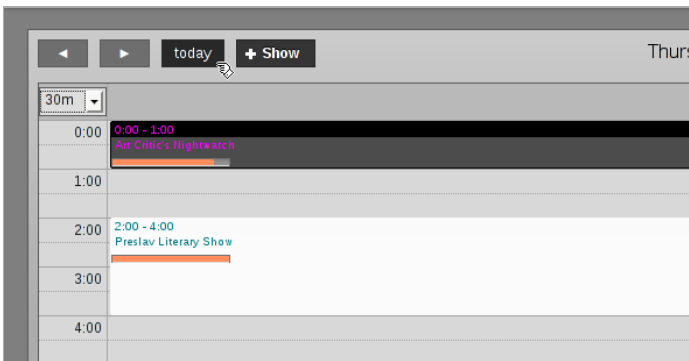


12. CALENDAR

The Calendar page of the Airtime administration interface has three views: **Day**, **Week** and **Month**, which can be switched using the gray buttons in the top right corner. By default, the **Month** view is shown, with today's date highlighted by a pale green background.



In the top left corner of the page, you can go back or forward through the **Calendar** by clicking on the small white triangle buttons. Click the **Today** button to jump to today's date in the current view. In the **Day** or **Week** views, there is also a drop-down menu which allows you to set the resolution displayed for the calendar, ranging from one minute per row to sixty minutes per row.



ADDING A SHOW

To add a new show to the Calendar, click the **+ Show** button in the top left corner of the page, or click on any empty row in the Calendar itself. Either of these actions opens the **Add this show** box, which has five sections, arranged vertically: **What**, **When**, **Record & Rebroadcast**, **Who**, and **Style**. Click the small black triangle to the left of the section name if you wish to minimize or maximize it.

In the **What** box, enter the name and description for the show that you are creating.

Close Add this show

► **What**

Name:
Test Show

Description:
This is an example show.

Next, in the **When** section, the date that you clicked on in the **Calendar** should already be entered in the **Date Start** field. To set another date for the show, click on the **Date Start** field and then select the alternative date that you require for the show from the small pop-up calendar. Then set the **Start time** and **Duration** for the show in the same way, with the pop-up **Hour** and **Minute** box. The minute values in the pop-up time boxes are rounded to the nearest five minutes, but you can adjust the times manually by clicking into the fields and typing.

► **When**

Date Start: 2011-03-18

Start Time: 12:30

Duration:

	Hour						Minute		
AM	00	01	02	03	04	05	00	05	10
	06	07	08	09	10	11	15	20	25
PM	12	13	14	15	16	17	30	35	40
	18	19	20	21	22	23	45	50	55

repeats

► **Who**

Type a Host:

To schedule a regular show, check the **Repeats?** box and select either **Weekly**, **Bi-weekly** or **Monthly** from the **Repeat Type** drop-down menu that will appear. Then check the boxes for the days of the week that you want to schedule the regular show on. Set the **Date End** for the regular show to finish, or check the **No End** box to schedule the show indefinitely.

► **When**

Date Start:

Start Time:

Duration:

repeats ☒

Repeat Type:

Select Days:

☐ Sun ☒ Mon ☒ Tue ☒ Wed ☒ Thu ☒ Fri ☐ Sat

Date End:

no end

► **Who**

Type a Host:

Hosts:

☐ klajn

March 2012

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

In the **Record & Rebroadcast** section, the **Record?** box enables automatic recording of the soundcard line input, if your Airtime server has one, at the time of the show. Shows set for live recording cannot also contain playlists. If you wish the recording to be played out at a later time, check the **Rebroadcast?** box, and then select up to ten date and time slots in the **Choose Days** box.

▶ **Record & Rebroadcast**

Record? ☒

Rebroadcast? ☒

Choose Days:

2011-05-17  @ 15:00 

2011-05-24  @ 15:00  

+

▶ **Who**

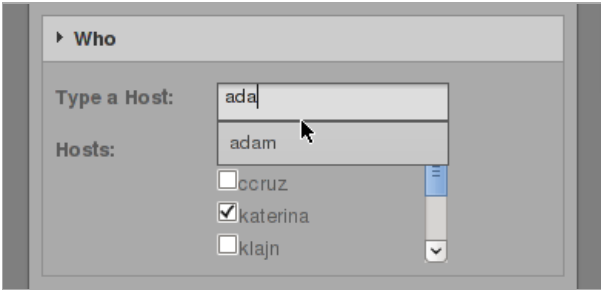
▶ **Style**

Hour						Minute		
00	01	02	03	04	05	00	05	10
06	07	08	09	10	11	15	20	25
12	13	14	15	16	17	30	35	40
18	19	20	21	22	23	45	50	55

Shows set for recording have a small red dot icon in the calendar, while rebroadcast shows have a white loop icon.

Sun	Mon	Tue	Wed	Thu
1	2	3	4	5
8	9	10 18:00 - 19:00 Funk Show 	11	12
15	16	17 18:00 - 19:00 Funk Show 	18	19
22	23	24 18:00 - 19:00 Funk Show 	25	26
29	30	31	1	2

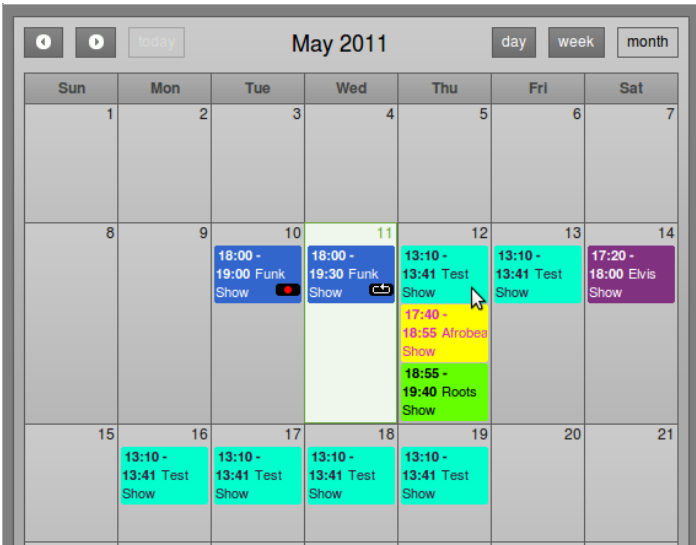
In the **Who** section, type the first few letters of the name of the show presenter to select a name from the database, or check one of the boxes in the vertical scrolling list below.



Finally, select a **Background Colour** and **Text Colour** from the **Style** section, so that the new show can be easily identified in the **Calendar**.



Click the **Add this show** button at the top or bottom of the box. The new show will now be displayed in the **Calendar**, with a regular slot if you have chosen to schedule one.



EDITING A SHOW

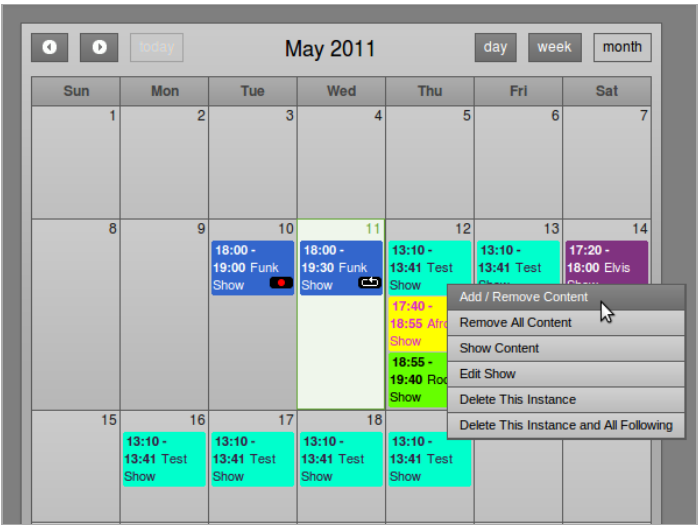
Show configuration and metadata can be changed at any time until broadcast of that show commences. Click on the show in the Calendar, and select **Edit Show** from the pop-up context menu. This opens the **Update Show** box, which is exactly the same as the **Add this Show** box. Click the **Update Show** button at the top or bottom of the box when you are done.

Alternatively, individual shows can be clicked on and dragged to new days and times in the calendar. However, Airtime will not allow you to drag a future show into the past, or drag a show onto a day where this would cause show times to overlap.

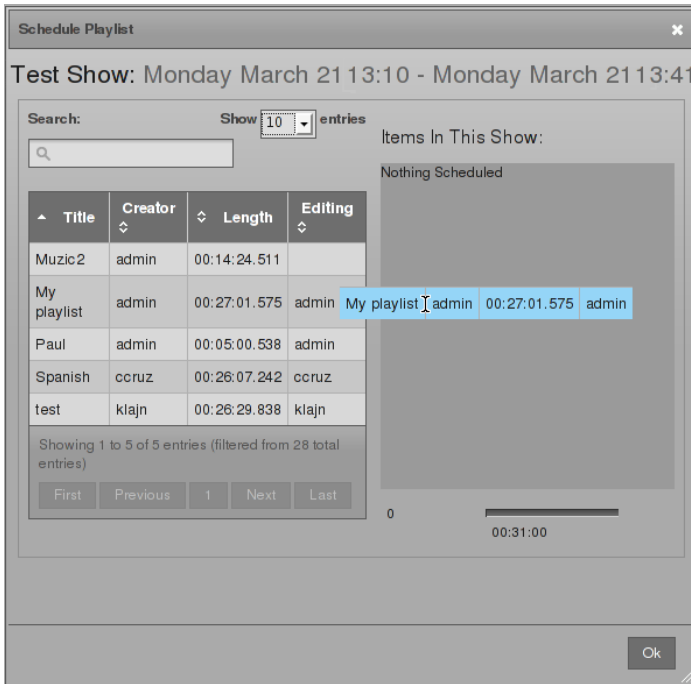
In the **Day** and **Week** views, show length can be adjusted by clicking on the lower edge of the show box, and dragging the edge of the box upwards or downwards. The new show length is calculated automatically. Airtime will not allow you to drag a show end time beyond the start of the next show.

ADDING CONTENT TO A SHOW

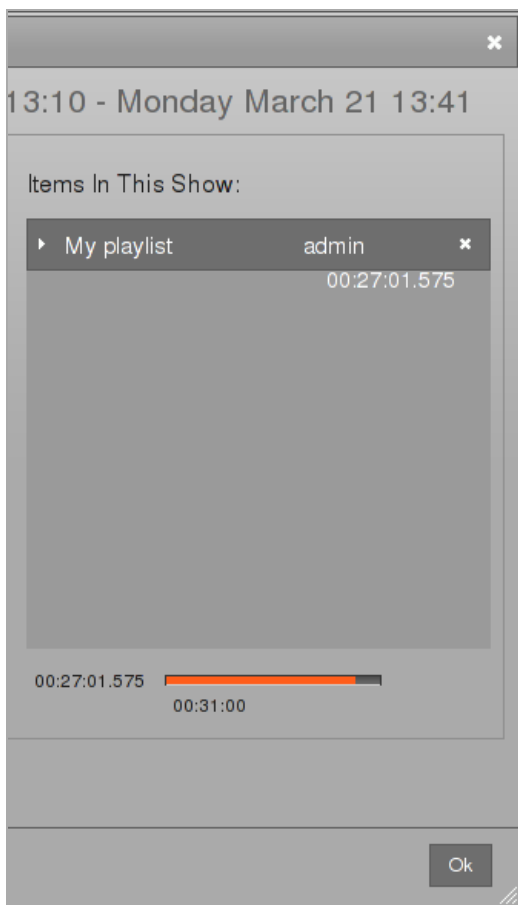
To add content to a show, click on it in the Calendar, and select **Add/Remove Content** from the pop-up context menu.



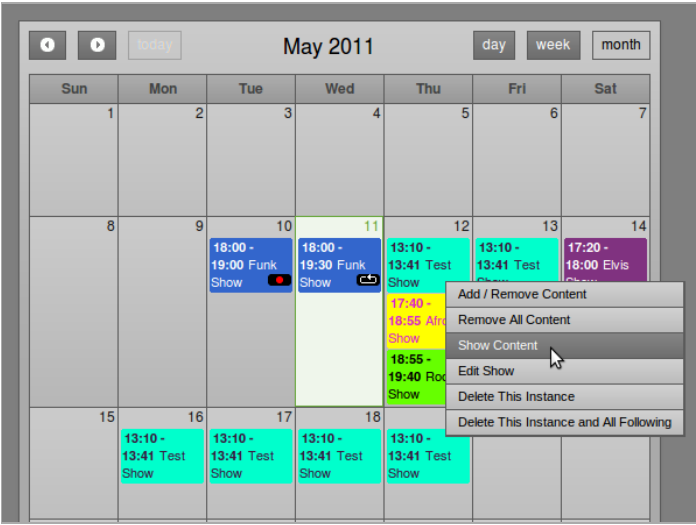
This action opens the **Schedule Playlist** pop-up window. Just like when using the **Playlist Builder** to find files, you can search for playlists and drag them into the **Items In This Show** box.



The orange progress bar underneath the **Items in this Show** box updates automatically to show how much time remains from the allocated show duration. If you add too much media relative to the length of time allocated to the show, Airtime will display a warning, and playout will be cut when the show ends. Click the small white triangle on the left of each row to see details of the playlist, or click the white **x** icon on the right side to remove it from the show.



When your show has all the required content, click the **OK** button in the bottom right corner to close the window. Back in the **Calendar**, click on the show and select **Show content** from the pop-up context menu to view a list of content now included in the show.



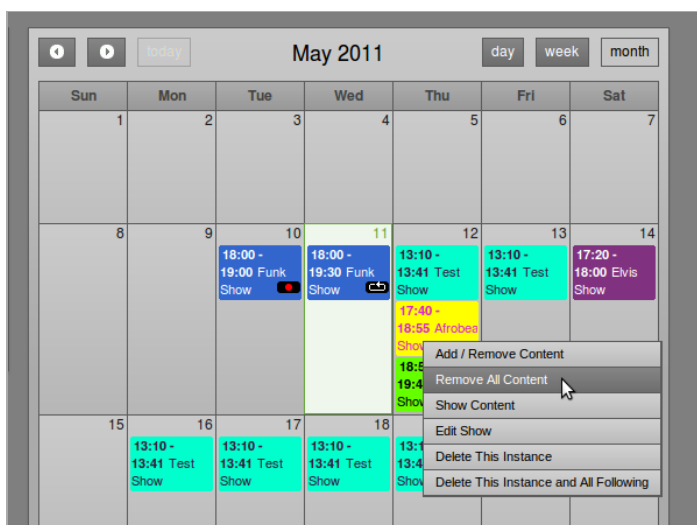
Click the **OK** button in the bottom right corner, or the **x** icon in the top right corner, to close the **Show Contents** window.

Show Contents					
Start	Title	Creator	Album	Length	Genre
2011-03-21 13:10:00	Love Dancing	Arthur's Landing	Strut Sampler 2011	00:06:01.299	
2011-03-21 13:16:01.299	Баллада № 1 (женский романс)	Ильмера	Секреты	00:04:18.37	Blues
2011-03-21 13:20:19.669	WO QUI NON COIN / COWBOY BEBOP	Aoi Tada	Space Bio Charge	00:03:42.66	Anime
2011-03-21 13:24:02.329	Respect	Aretha Franklin	I Never Loved A Man the Way I Love You	00:02:24.953	Oldies
2011-03-21 13:26:27.282	Cherry Blossom Girl	Air	Talkie Walkie	00:03:39.472	Other
2011-03-21 13:30:06.754	Seven Nation Army	Ben L'Oncle Soul	Ben L'Oncle Soul	00:02:59.43	R&B
2011-03-21 13:33:06.184	Warlock	Desmond Dekker	Rockin' Steady The Best of Desmond Dekker	00:03:55.391	Ska

Ok

REMOVING CONTENT FROM A SHOW

To remove an individual playlist from a show, click on the show in the **Calendar**, and select **Add/Remove Content** from the pop-up menu. In the **Schedule Playlist** window which opens, use the white **x** icon to remove the playlist from the show content. To remove all playlists from a show, click on the show in the **Calendar**, and select **Remove All Content** from the pop-up menu.



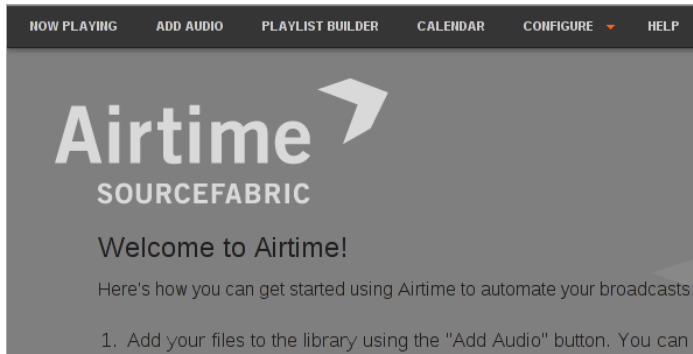
DELETING A SHOW

To delete one instance of a regular show, click on the show in the **Calendar**, and select **Delete This Instance** from the pop-up menu. If you wish to delete all future instances of this particular show, select **Delete This Instance and All Following** from the pop-up menu.

You cannot delete or remove content from shows that have already played out. These shows have only one option on the pop-up menu, which is **Show Content**.

13. HELP

The Help menu in Airtime offers a 'quick start' guide for new users.



You can visit the Airtime online support forum, and sign up for the mailing list, at <http://forum.sourcefabric.org/index.php/f/14/>

This forum is mirrored by the mailing list, so posts on the forum appear on the mailing list and vice versa. You can therefore also post a message there by emailing airtime-support@lists.sourcefabric.org

To subscribe to forum updates via mail, please register or login to the forum by clicking the appropriate link. Then click the 'Subscribe' button at the top of each forum page.

BUG REPORTING

Airtime needs your input to improve. If you think you've found a bug, please visit <http://dev.sourcefabric.org/> and sign in, using the same login and password that you registered for the Airtime forum. Create a bug report by selecting **Create Issue**, then **Airtime**, and then **Bug**. That way, the Airtime team can keep track of your problem and notify you when it has been fixed. You can also suggest improvements and new features for Airtime on that site.

CONTACT

Finally, when all other avenues have been exhausted, email us directly at contact@sourcefabric.org and we'll try to help!

OTHER HELP

The UNESCO wiki *Community Radio - A user's guide to the technology*: <http://cr-userguide.web4all.in/> features a very comprehensive guide to setting up a community radio station. This guide is aimed at people thinking about setting up a radio station in India, but includes lots of practical advice that would be useful in any country.

ADVANCED CONFIGURATION

14. EXPORTING THE SCHEDULE

14. EXPORTING THE SCHEDULE

Airtime has a feature which enables your station's weekly schedule and current show information to be displayed on remote websites. This feature is included in Airtime because you would not usually invite the general public to access your Airtime server directly. If you had very large numbers of people requesting data from the Airtime server at once, the burst of network traffic might overload the server, potentially disrupting your broadcasts. If carried out maliciously, this network overload is known as a *Denial of service attack*.

Instead, your public-facing web server can retrieve the schedule information from Airtime. This information can then be displayed on your broadcast station or affiliate websites by a content management system, such as Sourcefabric's **Newscoop** (<http://newscoop.sourcefabric.org/>).

There are two kinds of information that can be retrieved remotely from Airtime; the metadata for the current 'live' show plus the following show, or the schedule for the current week. This metadata includes show names, times, descriptions and individual show URLs on your public website. That way, the audience for your station can click through from the schedule information to find out more about a particular show, or download a previous show recording.

If your Airtime server was accessible at <http://airtime.example.com> the live show information could be retrieved by your web server using this URL:

```
http://airtime.example.com/api/live-info/?callback
```

The comma-separated text metadata returned to your web server might be something like this:

```
{
  "env": "development",
  "schedulerTime": "2011-05-09 15:01:18",
  "currentShow": [{"start_timestamp": "2011-05-09 16:00:00",
    "end_timestamp": "2011-05-09 17:00:00",
    "name": "Funk Show",
    "id": "8",
    "instance_id": "8",
    "record": "0",
    "url": "http://funk.example.com/"},
    {"id": "9", "starts": "2011-05-09 17:00:00",
    "ends": "2011-05-09 18:00:00",
    "show_id": "9",
    "record": "0",
    "rebroadcast": "0",
    "instance_id": null,
    "file_id": null,
    "soundcloud_id": null,
    "time_filled": null,
    "name": "Dance show",
    "url": "http://dance.example.com",
    "genre": "Dance",
    "description": "Techno, techno, techno, techno!",
    "color": "000000",
    "background_color": "ffea00",
    "start_timestamp": "2011-05-09 17:00:00",
    "end_timestamp": "2011-05-09 18:00:00"}],
  "timezone": "BST",
  "timezoneOffset": "3600"
}
```

The information for the current week's schedule could be retrieved using the URL:

`http://airtime.example.com/api/week-info/?callback`

In this case, the metadata returned would be in a different format from the above example, something like the following. To keep the example short, this particular schedule export only contains four shows on a Monday. A full weekly schedule export would contain a great deal more text.

```
{
  "sunday": [],
  "monday": [
    { "show_starts": "2011-05-09 14:25:00",
      "show_ends": "2011-05-09 14:35:00",
      "show_name": "Elvis Show",
      "url": "http://elvis.example.com/" },
    { "show_starts": "2011-05-09 14:50:00",
      "show_ends": "2011-05-09 14:55:00",
      "show_name": "News",
      "url": "http://news.example.com/" },
    { "show_starts": "2011-05-09 16:00:00",
      "show_ends": "2011-05-09 17:00:00",
      "show_name": "Funk Show",
      "url": "http://funk.example.com/" },
    { "show_starts": "2011-05-09 17:00:00",
      "show_ends": "2011-05-09 18:00:00",
      "show_name": "Dance show",
      "url": "http://dance.example.com" }
  ],
  "tuesday": [],
  "wednesday": [],
  "thursday": [],
  "friday": [],
  "saturday": []
}
```

NEWSCOOP INTEGRATION

Your system administrator can integrate Airtime with a Newscoop site, with the following steps:

1. Create a cron job for a bash script that polls the Airtime server every minute, and writes the metadata returned into a pair of temporary files:

```
#!/bin/sh
curl -s "http://airtime.example.com/api/live-info/?callback=***" > /tmp/live-info
o
curl -s "http://airtime.example.com/api/week-info/?callback=***" > /tmp/week-info
o
```

2. In the Newscoop site's root folder, create the folders *api/live-info/* and *api/week-info/*

3. Create an index.php file in the *api/live-info/* folder, containing the following code:

```
<?php
$filename = '/tmp/live-info'; // define here the path and name of uploaded live
-info file

header('Content-Type: text/javascript');
header("Expires: Thu, 01 Jan 1970 00:00:00 GMT");
header("Cache-Control: no-store, no-cache, must-revalidate");

$callback = empty($_GET['callback']) ? null : $_GET['callback'];
$content = file_get_contents($filename);
$content = str_replace('***', $callback, $content);
echo $content;
```

?>

4. Create an `index.php` file in the `api/week-info/` folder, containing the following code:

```
<?php
$filename = '/tmp/week-info'; // define here the path and name of uploaded week
-info file

header('Content-Type: text/javascript');
header("Expires: Thu, 01 Jan 1970 00:00:00 GMT");
header("Cache-Control: no-store, no-cache, must-revalidate");

$callback = empty($_GET['callback']) ? null : $_GET['callback'];
$content = file_get_contents($filename);
$content = str_replace('***', $callback, $content);
echo $content;
?>
```

NEWSCOOP WIDGETS

This is the code for a small widget that displays information about the current show (show time elapsed, and show time remaining), as well as some information about the next show (start time and end time).

```
<script>
$(document).ready(function() {
    $("#headerLiveHolder").airtimeLiveInfo({
        sourceDomain: "http://airtime.example.com",
        text: {onAirToday:"On air today"},
        updatePeriod: 20 //seconds
    });
});
</script>
```

On a Newscoop site, this widget can be styled with CSS to look like the following screenshot:



SUR LES ANTENNES >>	
Current: Newslink	e.04:51 r.25:08
Next: Pages of History (EN)	16:30 - 17:00

The next widget is medium sized, and displays the upcoming show schedule for that day.

```
<script>
$(document).ready(function() {
    $("#onAirToday").airtimeShowSchedule({
        sourceDomain: "http://airtime.example.com",
        text: {onAirNow:"On Air Now", offline:"Offline", current:"Current",
next:"Next"},
        updatePeriod: 5 //seconds
    });
});
</script>
```

The widget code above looks like this screenshot:

On air today	
16:00 - 16:30	Newslink
16:30 - 17:00	Pages of History (EN)
17:00 - 17:30	L'Info Chez-Vous
17:30 - 04:00	Pages d'histoire
18:30 - 19:00	Choices (EN)
19:00 - 19:30	L'Info chez vous (FR)

Finally, the following code creates a large, bi-lingual widget that enables site visitors to browse through the show schedule for that week:

```
<script>
    $(document).ready(function() {
        $("#scheduleTabs").airtimeWeekSchedule({
            sourceDomain:"http://airtime.example.com/",
            dowText:{monday:"Lundi", tuesday:"Mardi", wednesday:"Mercredi", thur
sday:"Jeudi", friday:"Vendredi", saturday:"Samedi", sunday:"Dimanche"},
            miscText:{time:"Temps", programName:"Nom du Programme", details:"Dét
ails", readMore:"Lire La Suite"},
            updatePeriod: 600 //seconds
        });
    });
</script>
```

In Newscoop, using the code above, the first six hours of the schedule each day look like this:

Lundi	Mardi	Mercredi	Jeudi	Vendredi	Samedi	Dimanche	
TEMPS		NOM DU PROGRAMME				DÉTAILS	
00:00 - 00:30		Newslink (EN)				LIRE LA SUITE	
00:30 - 00:45		The Citizen (EN)				LIRE LA SUITE	
01:00 - 01:30		L'Info chez-vous				LIRE LA SUITE	
02:00 - 02:30		Music From Countries - Promo				LIRE LA SUITE	
02:30 - 03:00		Music From Countries - Promo				LIRE LA SUITE	
03:00 - 03:30		Newslink					
04:00 - 04:30		L'info chez-vous (FR)				LIRE LA SUITE	
04:30 - 05:00		Fifty Fifty (FR)				LIRE LA SUITE	
05:00 - 05:30		Music From Countries - Promo				LIRE LA SUITE	
05:30 - 06:00		Music From Countries - Promo				LIRE LA SUITE	

APPENDIX

I 5. TIME ZONES

I 6. ABOUT THIS MANUAL

15. TIME ZONES

Use the appropriate time zone value from the list below in the *php.ini* file on your Airtime server.

AFRICA

Africa/Abidjan, Africa/Accra, Africa/Addis_Ababa, Africa/Algiers, Africa/Asmara,
Africa/Asmera, Africa/Bamako, Africa/Bangui, Africa/Banjul, Africa/Bissau, Africa/Blantyre,
Africa/Brazzaville, Africa/Bujumbura, Africa/Cairo, Africa/Casablanca, Africa/Ceuta,
Africa/Conakry, Africa/Dakar, Africa/Dar_es_Salaam, Africa/Djibouti, Africa/Douala,
Africa/El_Aaiun, Africa/Freetown, Africa/Gaborone, Africa/Harare, Africa/Johannesburg,
Africa/Kampala, Africa/Khartoum, Africa/Kigali, Africa/Kinshasa, Africa/Lagos, Africa/Libreville,
Africa/Lome, Africa/Luanda, Africa/Lubumbashi, Africa/Lusaka, Africa/Malabo, Africa/Maputo,
Africa/Maseru, Africa/Mbabane, Africa/Mogadishu, Africa/Monrovia, Africa/Nairobi,
Africa/Ndjamena, Africa/Niamey, Africa/Nouakchott, Africa/Ouagadougou, Africa/Porto-
Novo, Africa/Sao_Tome, Africa/Timbuktu, Africa/Tripoli, Africa/Tunis, Africa/Windhoek

AMERICA

America/Adak, America/Anchorage, America/Anguilla, America/Antigua, America/Araguaina, America/Argentina/Buenos_Aires, America/Argentina/Catamarca, America/Argentina/ComodRivadavia, America/Argentina/Cordoba, America/Argentina/Jujuy, America/Argentina/La_Rioja, America/Argentina/Mendoza, America/Argentina/Rio_Gallegos, America/Argentina/Salta, America/Argentina/San_Juan, America/Argentina/San_Luis, America/Argentina/Tucuman, America/Argentina/Ushuaia, America/Aruba, America/Asuncion, America/Atikokan, America/Atka, America/Bahia, America/Bahia_Banderas, America/Barbados, America/Belem, America/Belize, America/Blanc-Sablon, America/Boa_Vista, America/Bogota, America/Boise, America/Buenos_Aires, America/Cambridge_Bay, America/Campo_Grande, America/Cancun, America/Caracas, America/Catamarca, America/Cayenne, America/Cayman, America/Chicago, America/Chihuahua, America/Coral_Harbour, America/Cordoba, America/Costa_Rica, America/Cuiaba, America/Curacao, America/Danmarkshavn, America/Dawson, America/Dawson_Creek, America/Denver, America/Detroit, America/Dominica, America/Edmonton, America/Eirunepe, America/El_Salvador, America/Ensenada, America/Fort_Wayne, America/Fortaleza, America/Glace_Bay, America/Godthab, America/Goose_Bay, America/Grand_Turk, America/Grenada, America/Guadeloupe, America/Guatemala, America/Guayaquil, America/Guyana, America/Halifax, America/Havana, America/Hermosillo, America/Indiana/Indianapolis, America/Indiana/Knox, America/Indiana/Marengo, America/Indiana/Petersburg, America/Indiana/Tell_City, America/Indiana/Vevay, America/Indiana/Vincennes, America/Indiana/Winamac, America/Indianapolis, America/Inuvik, America/Iqaluit, America/Jamaica, America/Jujuy, America/Juneau, America/Kentucky/Louisville, America/Kentucky/Monticello, America/Knox_IN, America/La_Paz, America/Lima, America/Los_Angeles, America/Louisville, America/Maceio, America/Managua, America/Manaus, America/Marigot, America/Martinique, America/Matamoros, America/Mazatlan, America/Mendoza, America/Menominee, America/Merida, America/Mexico_City, America/Miquelon, America/Moncton, America/Monterrey, America/Montevideo, America/Montreal, America/Montserrat, America/Nassau, America/New_York, America/Nipigon, America/Nome, America/Noronha, America/North_Dakota/Beulah, America/North_Dakota/Center, America/North_Dakota/New_Salem, America/Ojinaga, America/Panama, America/Pangnirtung, America/Paramaribo, America/Phoenix, America/Port-au-Prince, America/Port_of_Spain, America/Porto_Acre, America/Porto_Velho, America/Puerto_Rico, America/Rainy_River, America/Rankin_Inlet, America/Recife, America/Regina, America/Resolute, America/Rio_Branco, America/Rosario, America/Santa_Isabel, America/Santarem, America/Santiago, America/Santo_Domingo, America/Sao_Paulo, America/Scoresbysund, America/Shiprock, America/St_Barthelemy, America/St_Johns, America/St_Kitts, America/St_Lucia, America/St_Thomas, America/St_Vincent, America/Swift_Current, America/Tegucigalpa, America/Thule, America/Thunder_Bay, America/Tijuana, America/Toronto, America/Tortola, America/Vancouver, America/Virgin, America/Whitehorse, America/Winnipeg, America/Yakutat, America/Yellowknife

ANTARCTICA

Antarctica/Casey, Antarctica/Davis, Antarctica/DumontDURville, Antarctica/Macquarie, Antarctica/Mawson, Antarctica/McMurdo, Antarctica/Palmer, Antarctica/Rothera, Antarctica/South_Pole, Antarctica/Syowa, Antarctica/Vostok

ARCTIC

Arctic/Longyearbyen

ASIA

Asia/Aden, Asia/Almaty, Asia/Amman, Asia/Anadyr, Asia/Aqtau, Asia/Aqtobe, Asia/Ashgabat, Asia/Ashkhabad, Asia/Baghdad, Asia/Bahrain, Asia/Baku, Asia/Bangkok, Asia/Beirut, Asia/Bishkek, Asia/Brunei, Asia/Calcutta, Asia/Choibalsan, Asia/Chongqing, Asia/Chungking, Asia/Colombo, Asia/Dacca, Asia/Damascus, Asia/Dhaka, Asia/Dili, Asia/Dubai, Asia/Dushanbe, Asia/Gaza, Asia/Harbin, Asia/Ho_Chi_Minh, Asia/Hong_Kong, Asia/Hovd, Asia/Irkutsk, Asia/Istanbul, Asia/Jakarta, Asia/Jayapura, Asia/Jerusalem, Asia/Kabul, Asia/Kamchatka, Asia/Karachi, Asia/Kashgar, Asia/Kathmandu, Asia/Katmandu, Asia/Kolkata, Asia/Krasnoyarsk, Asia/Kuala_Lumpur, Asia/Kuching, Asia/Kuwait, Asia/Macao, Asia/Macau, Asia/Magadan, Asia/Makassar, Asia/Manila, Asia/Muscat, Asia/Nicosia, Asia/Novokuznetsk, Asia/Novosibirsk, Asia/Omsk, Asia/Oral, Asia/Phnom_Penh, Asia/Pontianak, Asia/Pyongyang, Asia/Qatar, Asia/Qyzylorda, Asia/Rangoon, Asia/Riyadh, Asia/Saigon, Asia/Sakhalin, Asia/Samarkand, Asia/Seoul, Asia/Shanghai, Asia/Singapore, Asia/Taipei, Asia/Tashkent, Asia/Tbilisi, Asia/Tehran, Asia/Tel_Aviv, Asia/Thimbu, Asia/Thimphu, Asia/Tokyo, Asia/Ujung_Pandang, Asia/Ulaanbaatar, Asia/Ulan_Bator, Asia/Urumqi, Asia/Vientiane, Asia/Vladivostok, Asia/Yakutsk, Asia/Yekaterinburg, Asia/Yerevan

ATLANTIC OCEAN

Atlantic/Azores, Atlantic/Bermuda, Atlantic/Canary, Atlantic/Cape_Verde, Atlantic/Faeroe, Atlantic/Faroe, Atlantic/Jan_Mayen, Atlantic/Madeira, Atlantic/Reykjavik, Atlantic/South_Georgia, Atlantic/St_Helena, Atlantic/Stanley

AUSTRALIA

Australia/ACT, Australia/Adelaide, Australia/Brisbane, Australia/Broken_Hill, Australia/Canberra, Australia/Currie, Australia/Darwin, Australia/Eucla, Australia/Hobart, Australia/LHI, Australia/Lindeman, Australia/Lord_Howe, Australia/Melbourne, Australia/North, Australia/NSW, Australia/Perth, Australia/Queensland, Australia/South, Australia/Sydney, Australia/Tasmania, Australia/Victoria, Australia/West, Australia/Yancowinna

EUROPE

Europe/Amsterdam, Europe/Andorra, Europe/Athens, Europe/Belfast, Europe/Belgrade, Europe/Berlin, Europe/Bratislava, Europe/Brussels, Europe/Bucharest, Europe/Budapest, Europe/Chisinau, Europe/Copenhagen, Europe/Dublin, Europe/Gibraltar, Europe/Guernsey, Europe/Helsinki, Europe/Isle_of_Man, Europe/Istanbul, Europe/Jersey, Europe/Kaliningrad, Europe/Kiev, Europe/Lisbon, Europe/Ljubljana, Europe/London, Europe/Luxembourg, Europe/Madrid, Europe/Malta, Europe/Mariehamn, Europe/Minsk, Europe/Monaco, Europe/Moscow, Europe/Nicosia, Europe/Oslo, Europe/Paris, Europe/Podgorica, Europe/Prague, Europe/Riga, Europe/Rome, Europe/Samara, Europe/San_Marino, Europe/Sarajevo, Europe/Simferopol, Europe/Skopje, Europe/Sofia, Europe/Stockholm, Europe/Tallinn, Europe/Tirane, Europe/Tiraspol, Europe/Uzhgorod, Europe/Vaduz, Europe/Vatican, Europe/Vienna, Europe/Vilnius, Europe/Volgograd, Europe/Warsaw, Europe/Zagreb, Europe/Zaporozhye, Europe/Zurich

INDIAN OCEAN

Indian/Antananarivo, Indian/Chagos, Indian/Christmas, Indian/Cocos, Indian/Comoro, Indian/Kerguelen, Indian/Mahe, Indian/Maldives, Indian/Mauritius, Indian/Mayotte, Indian/Reunion

PACIFIC OCEAN

Pacific/Apia, Pacific/Auckland, Pacific/Chatham, Pacific/Chuuk, Pacific/Easter, Pacific/Efate, Pacific/Enderbury, Pacific/Fakaofu, Pacific/Fiji, Pacific/Funafuti, Pacific/Galapagos, Pacific/Gambier, Pacific/Guadalcanal, Pacific/Guam, Pacific/Honolulu, Pacific/Johnston, Pacific/Kiritimati, Pacific/Kosrae, Pacific/Kwajalein, Pacific/Majuro, Pacific/Marquesas, Pacific/Midway, Pacific/Nauru, Pacific/Niue, Pacific/Norfolk, Pacific/Noumea, Pacific/Pago_Pago, Pacific/Palau, Pacific/Pitcairn, Pacific/Pohnpei, Pacific/Ponape, Pacific/Port_Moresby, Pacific/Rarotonga, Pacific/Saipan, Pacific/Samoa, Pacific/Tahiti, Pacific/Tarawa, Pacific/Tongatapu, Pacific/Truk, Pacific/Wake, Pacific/Wallis, Pacific/Yap

16. ABOUT THIS MANUAL

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- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

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“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

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